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FOREWORD

This volume contains the summaries of the reports submitted by the M.Ed. students of the year 1956-57 in part fulfilment of requirements of the M.Ed. degree of the University of Delhi.

These summaries were edited by Dr. Sunitee Dutt of the Institute.

E. A. PIRES,
Principal.

CENTRAL INSTITUTE OF EDUCATION,
DELHI-8
January, 1960.

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Construction of an Achievement Test in Algebra for Class VIII of the High Schools of Birbhum District, West Bengal

By A. S. Das

THE PROBLEM AND ITS DELIMITATION

The present investigation was directed towards the construction of an achievement test in Algebra for class VIII of the High Schools of the District of Birbhum, West Bengal.

Due to consideration of time-limit, it was not possible to conduct the study on a large scale. The area was limited to the towns of Bolpur, Suri, Ahmadpur, Santiniketan and their neighbourhood, in the District of Birbhum. Nine schools of Ramporehaut area could not be approached due to geographical and transport difficulties. The test was constructed in Bengali on the basis of the syllabus for the High Schools of that particular province. It was administered on a sample of moderate size and included 200 students only. Due to shortage of time, the test could not be standardised.

THE TEST

The investigator strictly adhered to the syllabus of the class as prescribed by the Board of Secondary Education, West Bengal. In order to select items for the form, the investigator contacted a number of mathematics teachers of several schools. This was done to find out whether the courses covered were the same. The investigator also examined and found out the topics on which generally more emphasis was laid than others. This helped the investigator to have an idea of the proportion of items on different topics to be included in the try-out form. The test was constructed as such, giving adequate attention to the following objectives :

- (1) the knowledge of fundamental concepts in algebraic addition, subtraction and particularly of multiplication ;
- (2) familiarity with various formulae and their uses ;
- (3) solution both mechanically and intelligently of equations ;
- (4) conversion of verbal problems to algebraic equations ;
- (5) elementary factorisation ; and
- (6) generalisation.

The items of the test were spread over the syllabus roughly according to the following percentages:

The four simple rules	20
Equations & problems	25
Formulae & factors	30
Use of symbols	10
Elementary Indices and generalisation	15

In all, 80 items were included in the try-out form. The test was subdivided into 3 parts. Part I had 30 items of the 'simple recall' type. Part II had 20 items of the 'alternate choice' type. Part III had 30 items of the 'multiple-choice' type.

The try-out form was administered in seven schools and from each school fifty per cent of the students were selected. Table I shows the number of schools and boys that came under the present study.

TABLE I
Distribution of Schools in the District of Birbhum

Area	Total number of Schools in the Area		Total number of Schools included in the Study N=200	
	Large	Small	Large	Small
Bolpur	2	6	1	1
Ahmadpur	2	4	1	1
Suri	3	13	1	2
Santiniketan	..	2	..	1
Ramporehaut	2	7	..	..

ITEM ANALYSIS AND INTERPRETATIONS

Items having difficulty value between 20 per cent and 80 per cent were considered to be suitable for inclusion in the final form. As for discriminative power, an item was considered suitable for selection in the final form if it had a discriminating coefficient of .20 to .80. The discriminating efficiency of an item was found by comparing the number in the highest 27 per cent with the number in the lowest 27 per cent of the sample. Out of eighty items, fifteen were rejected on the base mentioned above. Table II shows the difficulty value and the discriminating value of the 15 rejected items.

TABLE II

Item	Number of correct responses	Difficulty value in percentage	Number of correct responses in			Discriminating value
			Upper 27 per cent	Middle 46 per cent	Lower 27 per cent	
1	167	88.5	51	86	30	.39
*2	41	20.5	17	18	6	.20
7	179	89.5	52	82	45	.13
9	24	12.0	11	7	6	.09
11	24	12.0	16	7	1	.27
36	62	31.0	23	26	13	.18
37	151	75.5	44	71	36	.15
39	53	26.5	17	24	12	.09
47	82	41.0	24	37	21	.06
*49	42	21.0	21	15	6	.27
52	140	70.0	37	70	31	.11
*53	41	20.5	21	17	3	.33
58	81	40.5	26	37	18	.14
60	80	40.5	33	22	25	.16
66	168	84.0	51	36	22	.42

The following were the rejected items:

1. If $a=10$, $b=8$, what is the value of ab ?
2. What is the numerical coefficient of $25bx^3$?
7. By what should $3x^2$ be multiplied to make it $12x^3$?
9. Divide x^2 by $x^{\frac{1}{2}}$
11. Simplify $\frac{27a^6 b^4 c^2}{18a^2 b^3 c}$
36. One of the factors of $6a^3 x^{14} - 15a^2 x^2 y$ is $3a^2 x^2$ (T. F.)
37. A is greater than B; B is greater than C, hence A is greater than C (T.F.)
39. A term may be taken from one side of an equation to the other side (T. F.)
47. $x=y^2$, hence x can never be equal to y (T.F.)
49. Ramesh is x years old. After 4 years, he will be $4x$ years old (T.F.)
52. If $8x$ is taken away from $-12x$, the result is $-4x$; $-20x$; $20x$; -4 .
53. If $a=3$, then $2a^3$ is equal to 36, -36 , 18, -18 .

It was expected that items 2, 49 and 53 which were different should have high discriminating coefficients. These three items failed to satisfy that and were consequently rejected. Thus, the items of the final test were spread over the syllabus roughly according to the following percentages:

The Four simple rules	...	...	...	18 per cent
Equations & problems	...	...	...	22 per cent
Formulae & factors	...	...	...	32 per cent
Use of symbols	...	...	...	12 per cent
Elementary indices and generalisation	...	...	...	16 per cent
TOTAL	...	...	...	100 per cent

Of these 25 were of the 'simple recall' type; 15, of the 'alternate response' type; and 25, of the 'multiple-choice' type. Frequency distribution of items according to difficulty value and discriminating value are presented in Tables III and IV.

TABLE III

Frequency Distribution of Items according to the Difficulty Value

Difficulty Value (percentage)	Frequency
70—79	7
60—69	13
50—59	12
40—49	15
30—39	10
20—29	8
TOTAL	65

TABLE IV

Frequency Distribution of Items according to Discriminating Power

Discriminating value	Frequency
.71 — .80	4
.61 — .70	8
.51 — .60	12
.41 — .50	19
.31 — .40	10
.21 — .30	12
TOTAL	65

The coefficient of reliability of the final form of the test was found to be .90. The raw score after rejection of the unsatisfactory items ranged from 6 to 64. There was no significant divergence of the distribution from normalcy. A provisional percentile norm was worked out on the basis of 200 students.

TABLE V
Percentile Norms (Provisional)

Percentile	Scores	Percentile	Scores
P ₉₀	60.50	P ₅₀	33.14
P ₈₀	49.45	P ₄₀	30.18
P ₈₀	44.41	P ₃₀	26.95
P ₇₅	42.24	P ₂₅	25.26
P ₇₀	40.12	P ₂₀	22.38
P ₆₀	36.27	P ₁₀	18.00

A Study into and Survey of the Adjustment in Teachers (Probing into the Probable Causes and Adjustment Difficulties, if any)

By B. K. Choudhuri

THE PROBLEM

The purpose of the present investigation is to find out the adjustment difficulties of teachers or to find out their neurotic tendencies, if any, which stand in their way of proper adjustment, and also to mark out the basic causes which have been operative in the creation of these neurotic tendencies in them. The term, "adjustment" apparently needs to be defined. The investigator has used the term 'adjustment' in a much more specific sense; and that is necessary as he has been on the look out of assessing, the kind of internal and total environment adjustment difficulties of teachers. Thus, the investigator's definition of 'adjustment' comprises: (a) feeling of security specially in the sense of acceptance, (b) proper sex attitude, (c) constitutional (including intellectual) soundness, (d) emotional balance including academic satisfaction, (e) occupational satisfaction, (f) peaceful adaptation to mental life and other family relations and (g) sense of economic security.

THE PRESENT PROCEDURE

The mental health of teachers is an essential condition for the fulfilment of educational objectives. The question naturally arises as to how can one assess the degree of mental health of teachers and also to account for the conditions for degree of mental ill-health or maladjustment to find out whether the subjects have any adjustment difficulty, and if so, what is the appropriate degree of neuroticism they have been suffering from. The investigator deemed it proper to resort to some available standard personality inventory. Of all these, Thurstone's "Personality Schedule" was found to be the best and most appropriate for the present purpose of assessing the degree of mental ill-health. As the second aspect of the investigation was to enquire into the various causes or factors which were operative in the creation of the maladjustment in certain teachers, it was essential to prepare another questionnaire which aimed at tapping the various factors.

Among the items of general personal information, the subjects were only asked to mention their age and whether they were married or single, and the tenure of their service as a teacher. The respondents were given the option of mentioning their name or not, so that they might be able to express their opinion with confidence and frankness, without any fear of criticism.

The investigation was carried out at Suri, the Headquarters of the District of Birbhum, West Bengal. In that limited locality, all the secondary school teachers were brought under the range of the investigation. To 155 teachers the first questionnaire was issued. 142 answers were received but 10 of these were rejected as incomplete ones. Thus, the total number of the "personality schedules" upon which the present investigation had been based, came down to 132; 120, from men and 12, from women teachers.

The method adopted in this present investigation was evidently the normative survey. The questionnaire technique had been resorted to for getting the requisite information from the subjects. The second questionnaire was prepared on the basis of the seven categories already mentioned. The questions were not arranged category-wise. Seven letters signifying the seven categories were attached to the serial number of the questions according to the category to which they belonged. There were a number of questions in each of the seven categories. In each category the responses which were indicative of maladjustment were counted. Those responses from all the questionnaires collected from the maladjusted subjects were added category-wise. Then, the number of questions in each category was multiplied by the number of questionnaires collected and from the ratio, the significant importance of each category in the matter of originating adjustment troubles was apprehended. The process of sorting the answer schedules was done according to the manual published by Chicago University.

The categories	Index No.	Number of questions
Mental life and other relations	M	14
Emotional stability	E	17
Economic condition.	Ec	3
Constitutional condition	C	16
Security, in the sense of acceptance	S	14
Sex attitude and adjustment	X	4
Occupational satisfaction	O	21
		<hr/> 89

ANALYSIS & INTERPRETATION OF THE DATA

Accepting the same method of classification of Thurstone to the scores of 132 teachers, it was found out that 30 teachers could be considered maladjusted in their group. The frequency distribution of their scores are given in Table I.

TABLE I

Showing the frequency distribution of the teachers found to be maladjusted

Scores	F
106—110.	1
101—105. . . . .	..
96—100. . . . .	..
91—95 . . . . .	..
86—90	1
81—85	3
76—80	5
71—75	4
66—70	6
61—55	10
	30

The two tables below show respectively the age and the service period of the 30 maladjusted teachers.

TABLE II

Frequency distribution of the maladjusted teachers in reference to their age

Age	F
61—65	1
56—60	1
51—55	2
46—50	1
41—45	4
36—40	2
31—35	8
26—30	8
21—25	3
	30

TABLE III

Frequency distribution of the maladjusted teachers in reference to their service-period

Years of service	F
26—30	2
21—25	3
16—20	3
11—15	5
6—10	8
1—5	9
	30

The greater number of maladjusted teachers are comparatively the younger ones. Though having no special significance for the present study, yet it should be mentioned that 6 out of the 30 teachers showed such difficulty on adjustment that needed psychological advice.

TABLE IV

Seven categories in terms of percentage of the responses made by them.

Index	Categories	No. of responses in terms of percentage
Eco.	Economical contribution	46.44
O	Occupational satisfaction	32.53
E	Emotional stability	28.62
M	Marital life & other joint relations	19.52
X	Sex attitude & adjustment	19.52
S	Security, in the sense of acceptance by others in society	14.76
C	Constitutional conditions	11.87

It should be reminded that the word, 'percentage', as was used here, should not be misunderstood. The table was meant for conveying the idea that, had there been 100 questions in each category what would have been the number of the response made to each of them. Then they were

arranged in order of their numerical strength for the purpose of comparison. In fact, the number of questions put in each category was not equal. To make them equal and thereby comparable, they had been interpreted in terms of percentage.

THE FINDINGS

1. From the answers of the first questionnaire it had been found that in the total population of 132 teachers, 30 are definitely maladjusted. Six among them needed psychiatric advice.

2. From the answers of second questionnaire which was answered by these 30 maladjusted teachers the following may however be stated :

(a) The seven categories, which had been hypothetically assured as probably the principal sources of maladjustment in teachers, had been found to be verified on objective grounds. Thus, the data, when analysed and classified, showed that in order of gravity the chief among the causes, which led to adjustment difficulties were:

- (i) the economic difficulties
- (ii) dissatisfaction with occupational conditions
- (iii) emotional disturbance or temperamental instability
- (iv) quarrel, discord, and more or less unhappiness in marital and family relations
- (v) unhappy sex-experience
- (vi) the lack of feeling of security
- (vii) constitutional deficiency.

(b) The table of the age of the 30 maladjusted subjects of this investigation revealed that the highest frequency fell in the age-range of 26 to 35 ; as 16 out of 30 teachers belonged to that age group.

(c) Length of service period might also be taken as one of the factors, which determined at least to a certain extent, the degree of adjustment difficulties in teachers. It was interesting to note in this connection that the longer the tenure of teaching the smaller the number of teachers having adjustment difficulty.

In the matter of the final findings about the sources of maladjustment in teachers, the present study once again showed close similarity with the finding of the study conducted by the research staff of the National Association of

the U.S.A. In that study, the teachers under investigation reported the causes of worry, in order of frequency, as follows:—

- (1) financial difficulties
- (2) present economic problems
- (3) serious illness of relatives or friends
- (4) unsatisfactory progress of pupils
- (5) matters of personal health
- (6) being unmarried and without normal family relationships
- (7) disciplinary problems
- (8) an official rating by a supervisor
- (9) possible loss of position
- (10) work of a college course
- (11) being unhappily married
- (12) religious questions.

Construction of an Attitude Scale of College Girls towards Teaching as a Career

By B. L. Mahalanobis

THE PURPOSE OF THE STUDY

As a new philosophy of the value of work is emerging in our country, there is no distinction between a man and a woman in the field of work, in the home, in the community, and in the professional life. In the West, there are various opportunities of guidance for the selection of a suitable job. But India is handicapped in this matter. Here, among the women, teaching is the most popular job. For the benefit of the teachers, as well as for the children and the community at large, these teachers should be selected according to their interests, ability and aptitude. For this purpose, their attitude towards the profession should be known beforehand. Here lies the importance of the present study.

The present study is an attempt to construct an attitude scale following the method of L. L. Thurstone with an end in view to determine the attitude of college girls towards teaching as a career. It is necessary to know the attitude of those among whom the future teachers are to be recruited.

MEASUREMENT OF ATTITUDES

Different psychologists have constructed attitude scales on different lines of procedure. Remmers classified these attitude scales which differ both in theory as well as in practice. These are :—(a) A priori scales for different kinds of polling devices ; (2) Psychophysical scale as used by Thurstone ; (3) Sigma scale—Likert's modification of Thurstone scale ; (4) Master Scale—Remmers' modification of Thurstone Scale ; (5) Behaviour Scale developed by Rosander ; and (6) analogous measurement of various sorts. viz., personality scale, interest blank, etc.

Thurstone's technique of scaling attitude test is known as the method of equal-appearing intervals. According to him opinions are expressed attitudes. Conduct of many people may turn out to be inconsistent with their professed opinions. They intentionally may distort their attitudes. Always there is found some sort of discrepancy between the index and truth. Yet it is interesting to measure at least the attitude which people try to make others believe that they have.

CONSTRUCTION OF THE PRESENT ATTITUDE SCALE

(a) *The Collection of Opinion*

Materials were collected from current literature, from the staff members of the Central Institute of Education,

Delhi, and from others. Out of these a list of sixty statements of opinion was prepared covering as far as possible all gradations from one end of the scale to the other. An attempt had been made to follow the informal criteria given by Thurstone in preparing the list.

(b) *The Sorting Procedure*

About a hundred persons were approached to act as judges but only forty-six responded in time and four at the end of the term. A set of sixty slips, one statement on each slip, together with the instructions for sorting out the statements was sent to each judge. The judges were asked to sort these sixty statements into eleven piles so that they might represent an evenly graduated series of attitudes from those which were very much in favour of the teaching profession to those which were extremely against it.

Among the returns of forty-six judges, forty were tabulated showing the frequency of each statement with which it was placed in each of the eleven categories, by the group of judges. Six responses were rejected on the basis of inconsistency of the individual judgment.

The Final Scale

Out of sixty statements of the original list twenty-five statements had been selected for the final scale. For this selection the following criteria were used: (1) criterion of ambiguity, (2) criterion of irrelevance, (3) the scale values of the statements and (4) some informal criteria. The scale values of these twenty-five items covered the entire scale as evenly as possible.

The Objective Criterion of Ambiguity

The first criterion used for the selection of statements was the objective criterion of ambiguity. The statements were judged by their Q-value. If the Q is large, the statement is considered as ambiguous and if the Q is small, it is considered as consistent and good. By this criterion, thirty-five statements were retained and twenty-five were rejected. These thirty-five statements were again judged by the objective criterion of irrelevance and twenty-five statements were selected for the final scale.

The Objective Criterion of Irrelevance

The criterion of irrelevance is concerned with the actual attitudes expressed by the subjects. The list of sixty statements were presented to forty college students of Delhi University and they were requested to check the

statements they agreed with and to leave blank the statements which they did not care to endorse. The internal consistency was judged from the returns of the statements.

Informal Criteria

Other informal criteria used for the selection of statements of opinion are the following:

- (a) As far as possible, the opinions should reflect the present attitude of the subject rather than his attitude in the past.
- (b) Double-barrelled statements are to be avoided.
- (c) The statements which are applicable to a very restricted field are to be avoided.
- (d) Opinions selected for the attitude scale should be such that it is not possible for subjects from both ends of the scale to endorse it.

The final form consists of the following statements:

- (1) 1. I like teaching more than anything else.
- (8) 2. The stereotyped work of a teacher makes him shallow-minded.
- (9) 3. Teaching is interesting because it involves meeting many people.
- (15) 4. I like teaching occasionally, but have no definite attitude towards it.
- (26) 5. Teaching may be good and useful profession but it does not interest me.
- (35) 6. An intelligent man should not waste his talent in the teaching profession.
- (45) 7. Opportunities are available in the teaching profession to read for pleasure.
- (48) 8. The teaching profession is the most disgraceful of all professions.
- (10) 9. Teaching is the profession which draws respect from a large number of people.
- (22) 10. Teachers cannot express their ideas openly.
- (12) 11. Teachers can express their views clearly and systematically.
- (14) 12. I think teaching is valuable in creating ideals and setting a person right morally.

- (33) 13. Sometimes I think teaching is good, sometimes I think it is not.
- (40) 14. If I were picking a man for a responsible work I would give preference to a teacher.
- (47) 15. Teachers are generally hypocrites and prejudiced.
- (31) 16. I believe the teacher has done and can do far more for society than a person in any other profession.
- (19) 17. The poor salaries of teachers do not attract intelligent and deserving persons to the teaching profession.
- (54) 18. I see no value in the teaching profession.
- (60) 19. I like to be a teacher because through the lives of my students I can be immortal.
- (46) 20. I do not care about teaching, but I do not like all to be like me.
- (56) 21. I like somethings about teaching, but I do not like other things about it.
- (25) 22. The teaching profession is as good as any other profession.
- (56) 23. I do not like teaching for a few years of teaching makes a person dull.
- (20) 25. Teaching is nothing but killing time and wasting energy.

A Comparative Study of Adult Education in India and the Philippines with Special Reference to the Philippine Community School.

By E. H. Jiloca

NEED FOR ADULT EDUCATION

The problems of peace, freedom and democracy are inseparably linked with the problem of education. To the extent that a nation possesses an enlightened, intelligent and dynamic citizenry will its real freedom be attained, democracy secured and the foundation of lasting peace laid.

The stability and strength of a democratic society depends upon the quality of its citizens. If democracy is to survive and if peace is to be permanently established, the **foundations for their defence must be built in the minds of men.** In under-developed countries of the world where widespread poverty, ignorance and illiteracy prevail, the education of the adult becomes as imperative as the education of the child.

Another justification for adult education lies in the rapidly changing tempo of modern living. The present world is a world of rapid changes brought about by advances in science and technology, which have created a gap between physical power and their effective social control. It is the task of adult education to bridge this gap between technological advances and social control. Adult education must provide lifelong and continuous learning that will enable the adult not only to make new adjustment to the changing environment but also to gain control over it.

VALUE OF A COMPARATIVE STUDY

In India and the Philippines, the "historical drives, ethnic composition, cultural conflicts, and language problems are similar." Both countries have many characteristics in common: social customs and traditions; economic difficulties and financial limitations; democratic political organisation; diversity of dialects and languages: widespread poverty, illiteracy, ignorance, disease, malnutrition and superstition. The problems of a particular country, however, can be understood only in the context of their particular setting, background and determinants. India with its historical background of ancient civilisation, centuries of foreign domination, a socio-economic setting characterised by caste stratification, widespread poverty, illiteracy and economic backwardness, offers one of the biggest

educational challenge in the world of today. The Philippines offers an interesting case of an agricultural oriental country where the impact of western culture has left its indelible imprint. Both countries have evolved their solution to their manifold problems: India, her Five-Year Plans and in particular, her Community Development Programmes and the Philippines, her Community School. A comparative study will bring out the similarity of problems in adult education in both countries as well as the diverse ways each country has taken to solve these problems. A comparative study, furthermore, will suggest what each country can learn from and, at the same time, offer to the other for the enrichment and improvement of community living in both. Just as the Philippine Community School is rich with implications for India so are the Community Development schemes and the Social Education concept of India for the Philippines.

PURPOSE OF THE STUDY

The purpose of this investigation is to describe and compare adult education in India and the Philippines, to analyse the features of adult education in each of the two countries, to single out those outstanding features which have meaning and relevance to the other country, and to indicate the ways in which each country can learn from the other in the field of adult education.

More specifically, the present investigation is concerned with the following:—

- (A) Analysis and comparison of adult education in India and the Philippines with respect to:
 - (1) Concept of adult education;
 - (2) Aims and objectives of adult education ;
 - (3) Content and scope of adult education ;
 - (4) Organisation and administration of adult education ;
 - (5) Adult education programmes, schemes, methods and techniques ;
 - (6) Financing of adult education ;
 - (7) Training of adult education workers ; and
 - (8) Problems, difficulties and needs of adult education ;
- (B) The implications of the philosophy, principles and practices of adult education in each country for the improvement and enrichment of adult education in the other and ways in which each country can profit by the experience and the example of the other.

PROCEDURE OF THE PRESENT INVESTIGATION

The method employed in the present investigation is the so-called comparative method. The study is an application in a small scale of the technique of comparative education to one specific aspect—adult education. In this report a two-step process has been followed: (1) description and comparison of principles and practices to discover likenesses and differences in the adult education movement in the two countries; and (2) appraisal of practices in the light of foundations to discover ways in which adult education in each country can be further improved and enriched by learning the experience of the other country.

The procedure consists in the main of a critical analysis of available documents, books, reports, journals, periodicals and other literature pertaining to adult education in India and the Philippines. In order to supplement the data obtained from these sources, the investigator interviewed several persons connected with community development programmes and adult education, in Delhi.

SUMMARY OF FINDINGS

Concept of Adult Education

In India, adult education has had a marked transformation from adult education as literacy campaign, which characterised the movement in pre-independence times to the present concept of "Social Education" with its emphasis on the education of the complete man with a sense of duty, rights and citizenship both as an individual and as a member of the community. Under the Programme of Community Development and National Extension Service, Social Education has become synonymous with "community uplift through community action."

In the Philippines, likewise, adult education went through a process of transformation from its theoretical beginnings as civic-educational lectures and community assemblies to the present one of adult education for personal and community uplift. As it is now being carried out in the Philippine Community School, adult education is an integral part of education for community living. The Philippine Community School, which is the chief agency in the Philippines that carries out the work of adult education, is one which serves the total population of the community—school children as well as the youth and adults out of school—and is based on the philosophy that the school and the community are two integrated interacting institutions, each one enriching and, in turn, being enriched by the other; that the school has a unique responsibility for leading in community improvement activities in

which both children and adults in the community participate.

Content and Scope of Adult Education

In both India and the Philippine, the content and scope of adult education has been expanded to include, besides literacy, other aspects of human living. The content of adult education in both countries now embrace the following :

- (1) Literacy,
- (2) Knowledge of the rules of health and hygiene,
- (3) Training in crafts for economic improvement,
- (4) Training in citizenship,
- (5) Recreational and cultural activities.

Aims of Adult Education

The aims of adult education in both India and the Philippines have points of similarity. In both countries, adult education aims to: develop functional literacy; instil a consciousness of the rights and duties of citizenship; impart knowledge of the laws of personal and community health and hygiene, provide training in crafts as a means to economic improvement; teach the wise use of leisure in worthwhile recreational activities; impart knowledge of the history, culture and problems of the country and the world at large.

Administration and Organisation of Adult Education

In India the responsibility for implementing social education programmes falls on the State Governments, except in few cases, where a non-official body assumes the task. The role of the Central Government is mainly that of co-ordination, guidance and financial assistance. In most States the task of administering and supervising social education programmes is entrusted to the Education Department. Under the Community Development and NES Programme, administrative responsibility at the project level: and through the Elementary School Principal at the block level, on the Social Education Organiser; at the village level, on the Village Level Worker.

The Philippines has a highly centralised system of education with administrative responsibility at the highest level (National or Central) resting on the Director of Public Schools, who is responsible to the Secretary of Education. The function of adult education under the present set-up of the community school is carried out by the Bureau of Public Schools through the Division of Adult Education at

the national level ; through the Superintendent of Schools at the divisional or city level ; through the District Supervisor or the Secondary School Principal at the next lower level ; and through the Elementary School Principal at the municipal or town level.

The task of adult education is shared by civic and welfare organisations of which the most prominent is the Parent-Teachers' Association. At the local level, the community improvement programmes of the community schools are carried out by a local organisation called the "purok" or zone which consists of several families living together in the same neighbourhood. There are several such units in one community with a coordinating council to coordinate the work of all the "puroks" in the community.

Adult Education Programmes, Schemes, Methods and Techniques

In India, each State has developed its own scheme of social education along the lines of the general scheme suggested by the Central Government. Of particular mention are the State schemes of Delhi—of which the outstanding features are the educational *melas* and educational caravan, the literacy campaign, post-literacy centres and *Janata College*, of Mysore with its *Vidyapeeth*, Students' Social Service camps and folk arts activities.

The Philippine Community School has evolved four approaches towards community improvement: (1) the direct approach in which students and teachers go out into the community to render public service ; (2) the indirect approach in which the curriculum is used to effect changes through the child ; (3) the dual approach in which community improvement is effected through the separate education of the child and the adult; and (4) the unitary approach in which both the child and the adult participate in an integrated programme of community education.

Financing of Adult Education

In India the burden of financing social education schemes falls mainly on the State governments with financial assistance from the Central governments with financial grants. The Second Five Year Plan has allotted Rs. 5 crores for Social Education. Under the Community Development and NES Programme, Rs. 10 crores have been set aside for Social Education.

In the Philippines, adult education programmes are financed by the National Government from funds appropriated for the purpose by the Philippine Congress. The

national appropriation for adult education is very meagre. A large part of the financial burden is borne by the people of the community and civic organisations, the contributions being in cash, labour or materials.

Training of Adult Education Workers

The States in India provide training courses for teachers varying from two months' to seven months' duration. Most States have Training Camps of short duration. Some States have rural colleges for the training of village leaders, notably the Janata College at Alipur. For the training of Village Level Workers and Social Education Organisers, Training Centres have been set up.

In the Philippines, colleges of education and public normal colleges offer courses in adult education and the community school. In-service training is provided by seminars, workshops, demonstrations, conventions, conferences, institutes, inter-visitation. A training centre has been set up in Bayambang with the help of UNESCO for the purpose of training graduate teachers in the techniques of the community school.

Achievements and Outcomes

Both in India and the Philippines, adult education and community development have shown considerable material and physical progress. There has been an increase in literacy, in the number of community centres set up, number of libraries, etc. There have also been encouraging signs of the awakening of public consciousness towards the need for community improvement. In India the social education movement has succeeded to some extent in arousing the village people for better living. In the Philippines, the success of the Philippine community school in effecting community improvement is almost phenomenal.

Shortcomings and Deficiencies: Problems and Needs

In India, some of the outstanding weaknesses of the present social education movement are the following: lack of trained personnel, lack of enthusiasm on the part of the people of the importance and value of Social Education; absence of specialist staff at the District and State levels; lack of appreciation on the part of government functionaries for the role of Social Education and the importance of the Social Education Organiser in the Programme of Community Development and National Extension; too much dependence of villagers on government aid; lack of clearly defined objectives on the part of social education workers; lack of adequate funds; and lack of follow-up materials.

In the Philippines, the community school suffers from the following shortcomings: sacrificing the interest of the child in the enthusiasm and hurry to effect community development; tendency to place undue importance to physical achievements; neglect of urban areas; lack of co-ordination of organisations engaged in community development; lack of competence on the part of the teachers to carry out the new responsibilities and tasks demanded of them in the new set-up; lack of adequate reading materials; confusion in the real meaning and implementation of the community school idea.

Implications of the Philippine Community School for India

1. Unique responsibility of the school for the reconstruction and improvement of the community.
2. Fuller utilisation of people's organisations.
3. Possibilities of the unitary approach in community development.
4. Integration of adult education with the regular school programme; community service rendered by the school children.
5. The possibilities of the "Little Teacher" technique in teaching literacy.
6. Utilisation of community resources for the enrichment of the curriculum for both child and adult.

Implications of the Social Education movement and the Programme of Community Development and National Extension Service for the Philippines

1. Integration of social education with national priorities in the national programme for national development; excellent planning of programmes.
2. Establishment of Janata colleges and rural institutes for the training of village leaders.
3. Utilisation of the services of college students along the lines of the Social Service camps and Youth Service camps of Mysore and other States.
4. Production of literature through a co-operating private body like the Jamia Millia.
5. A systematic library policy and the initiation of a library law along the lines of the Madras Library Law and other library policies in the different States of India.
6. The revival of folk arts and native culture.
7. The possibility of introducing the Educational Caravan and the literacy team methods of Delhi in the campaign for the eradication of illiteracy.

Construction of an Objective Test in General Science

By G. Paikaray

NEED FOR THE STUDY

This is a report on the construction of an objective test in General Science for the students appearing at the High School Certificate Examination in Orissa. The test was constructed according to the syllabus prescribed by the Board of Secondary Education for the same examination in General Science.

The study was taken up for the high schools in Orissa as the investigator is conversant with the defects and difficulties in the General Science examination. The defects are as follows:

- (1) Grouping of the subjects (physics, chemistry, botany, zoology, physiology, hygiene, astronomy, geology) in the question papers and a wide range of choice given to the students to answer 5 questions out of the 13, indirectly compel the students to make a selective study ;
- (2) Repetition of some questions favour selection;
- (3) Students avoid reading some parts, assuming the length of the answer to be of a very short length ;
- (4) Students may read only two subjects thoroughly for a pass as one question carries 20 marks only, when the pass mark in the subject is 30 out of 100 ;
- (5) Percentage of subject content covered by the question paper is too less ;
- (6) Chance factors hinder to show due justice to the real meritorious student.

THE TEST

The test was constructed only on four non-biological science branches of General Science (physics, chemistry, astronomy, geology).

The 200 items that had been given in the preliminary test were divided into four different sections according to the type of items.

Section I was of recall type. This section only covered 37 per cent of the whole test. The reason for giving more recall tests was that it was considered valuable particularly in Mathematics and Physical Sciences, where the stimulus appeared in the form of problem requiring computation. As the investigator wanted to test the candidates' preparation for an examination, there was every justification to have this recall tests more than any other type. The limi-

tation of the simple recall test is that it tends to measure highly factual knowledge, consisting of isolated bits of information, which was rather a point of advantage in this test.

Section II included multiple-choice items. This section consisted 12 per cent of the subject content of the test. Though Lindquist asserts that it is "definitely superior to other types" yet the test requires judgment of the pupils in selecting the correct one of the choices.

Section III contained alternate response test items covering 24 per cent of the test. (The number of true and false statements are equal so that there is equal provision for loss and gain for those who will guess. The advantage of the test is that pupils can cover more of the items of this test in the same time than of any other test.)

Section IV covered 26.5 per cent of the content of the test; but this section contained different types of tests as 'matching', 'rearrangement' and 'identification'.

The total score of each answer paper was obtained and they were arranged in order of merit. The scores ranged from 43 to 167. All the 204 answer papers were divided into six parts i.e. six samples: the first thirty-four highest scores being in the first sample and the next thirty-four high scores in the second and so on.

After finding out the difficulty value and the discriminating quotient of each item, it was necessary to frame certain rules on the basis of which items could be retained or cancelled for the final form. Those items which could not be answered by more than 30 per cent of the total number of pupils as well as the items that were answered by more than 70 per cent of the pupils were cancelled. It was found that by fixing difficulty value between 20 per cent and 80 per cent as the lower and upper limit to cancel an item, only 39 items out of 200 could be cancelled. As the investigator wanted to keep near about or exactly 100 items for the final scale, it was needed to approach more closely towards the difficulty value of 50 per cent from either side of the limits (20 per cent and 80 per cent) because more of the measures concentrated closely around the centre and tapered off to the right or the left. By this time items which could not discriminate properly between the samples were cancelled. There were 30 items which were cancelled purely for having low discriminating quotient i.e. below 25. Another 22 items were cancelled for both the reasons of having unsatisfactory difficulty value and discriminating quotients. Making closer the range of 20 per cent and 80 per cent difficulty value for cancelling an items, it was feasible that items having difficulty value above 70 per cent and below 30 per cent should be cancelled to have one hundred items for the final scale.

Thus, altogether 100 items were selected. The percentage of content of the different type of tests in the final scale is as follows :

1. Recall tests: 30 per cent,
2. Multiple choice test: 10 per cent,
3. Alternate response tests: 22 per cent,
4. Miscellaneous (Matching, Identification and re-arrangement) : 38 per cent.

The distribution of items according to subjects as well as according to the type of questions has been shown in Tables I and II below :

TABLE I

Subjects	Percentage of items in the tryout questionnaire	Percentage of items in the final questionnaire
Physics . . .	26	28
Chemistry. . .	28	25
Astronomy . .	22.5	22
Geology . . .	23.5	25

TABLE II

Type of Questions	Percentage of items in the tryout questionnaire	Percentage of items in the final questionnaire
1. Recall . . .	37	30
2. Multiple choice .	12.5	10
3. Alternate . . .	24	22
4. Matching Rearrange- ment, Identifications	26.5	38

The time for the final form of the test was kept 45 minutes for the 100 items as it was found that the average time taken by the students in the tryout test was one hour and fifteen minutes for 200 items.

The difficulty range, as well as the discriminating range of the selected items are shown in Tables III and IV respectively:

TABLE III

Difficulty range of the items selected for the final form of the questionnaire

Difficulty range	No. of items
66—70	13
61—65	21
56—60	7
51—55	10
46—50	13
41—45	12
36—40	12
31—35	7
26—30	5

N=100

TABLE IV

Discriminating range of the selected items for the final form of the questionnaire

Discriminating range	No. of items
·65—·74	3
·55—·64	9
·45—·54	35
·35—·44	29
·25—·34	24

N=100

TABLE V
*Frequency distribution of the scores made by 204 students
 on the final scale.*

Class intervals of Scores	F (Frequency)	Smoothed f
Above 97	0	·33
91—97	1	3·33
84—90	9	8·33
77—83	15	14·00
70—76	18	17·33
63—69	19	20·00
56—62	23	23·66
49—55	29	26·00
42—48	26	25·66
35—41	22	22·33
28—34	19	18·33
21—27	14	13·33
14—20	7	7·66
7—13	2	3·00
0—6	0	·66

OBSERVATIONS

Some queer observations were made from the test results: (1) Some very common things like "Pliers" was not known to most of the students. (2) Nor even a few per cent of students knew how to find the area of a small irregular field which is so simple and can be done by counting the number of small squares on a piece of graph paper. (3) Almost 30 per cent of the students could write the names of all the seven stars in the "Great Bear". This is because, the question on 'Polestar' and 'Great Bear' is very frequent in the final examination, while the simple mathematical portions that are included in the syllabus, though simple and interesting have not been set even once, since the introduction of General Science in the school curricula as a compulsory subject. (4) Even the students did not know the name of a slide callipers or a vernier scale to measure a fraction of a millimetre. (5) These indicated how the students and none the less the teachers had been examination minded. Use of objective tests will undoubtedly eradicate these wrong tendencies.

An Investigation into the Study Habits of University Students in the B.A. and B.Sc. First Year Classes of Agra University at Agra

By G. S. Gupta

THE PROBLEM

Study is not the mere acquisition of knowledge. It results in the formation of certain intellectual and emotional attitudes. Good study habits are necessary at the university stage for at least five reasons :

- (1) transition from school to college requires improved study habits,
- (2) the increased amount of knowledge at our disposal necessitates selection of material and good study habit.
- (3) in order to keep high standards of achievement and avoid wastage at the university good study habits are inevitable,
- (4) they are necessary for intelligent participation in current and social affairs,
- (5) good study habits are necessary for promotion of scholarship.

PURPOSE OF THE STUDY

The present study was undertaken—

- (1) to enlist the popular study habits of both Arts and Science students and to note the common problems and habits as well as those which show marked divergence between the two groups ;
- (2) to determine the peculiar study weaknesses that are most evident for the group as a whole ;
- (3) to help the student to recognize the peculiar habits which may be keeping them from attaining their best scholastic achievement ; and
- (4) to keep students think of study habits in a specific rather than a general sense and for motivating them to attack specific habits for development.

PREPARATION OF THE INVENTORY

The Inventory consists of 80 statements divided for the sake of convenience under 10 heads :—

- (1) The students' adjustment to the college (1-6)
- (2) Motivation (7-11)
- (3) Planning and preparing for daily work (12-18)
- (4) Attention and concentration (19-28)
- (5) Effective Reading habits (29-40)
- (6) Taking class-notes (41-48)

- (7) Social life and studies (49-53)
- (8) Examinations (54-64)
- (9) Use of the library (65-72)
- (10) Laboratory skills (73-80)

Each statement was required to be answered under either of the following 5 heads:

- (a) Always, (b) Most often, (c) Often, (d) Sometimes, (e) Never.

The Inventory was administered to men (Arts and Science) students only at the graduate (First Year) level in the 4 Degree colleges at Agra, viz., Agra College, Balwant Rajput College, R.E.I. College and St. John's College.

The investigation is based on 241 Arts and 123 Science students.

THE FINDINGS

(1) *Adjustment* : 83 per cent of Science and 77 per cent of Arts students feel happy in the college. 21 per cent of Science and 34 per cent of Arts students feel it a waste of time to be in the college and want to take up a job. 21 per cent in Science and 30 per cent in Arts group feel that they get too many assignments. Lack of supervision and personal attention is felt almost equally by the students of both the groups.

Also Arts students worry most about their studies.

(2) *Motivation*: More Arts students prepare their lessons in advance (36:18) and by far a large number read with the class (73:45). More Arts students feel the lack of congenial atmosphere for study around them (30:20).

(3) *Planning and preparing daily work*: Only about one-third of the students are planning consciously (item 14). Item 18 tells us that 43 per cent of the Arts students go well-prepared to the classes as against 28 per cent Science students.

(4) *Attention and concentration*: 51 per cent of Science and 40 per cent of Arts students do not study at night when they feel sleepy. Arts students can concentrate less. Items 25, 26, 27 and 28 show that Arts comprises of more students coming from lower socio-economic strata. This is corroborated by the information derived about the composition of the sample in terms of income-groups.

(5) *Effective reading habits*: Item 30 shows that 67 per cent of the Arts students and 28 per cent of Science students read the summary of the chapter before reading it in detail. Items 32 and 33 show that Science students make better use of graphs, tables, charts and diagrams. Dictionary finds a ready use by Arts students (65:52). Arts.

students also underline and take marginal notes (74 per cent) or write points on a piece of paper (63 per cent). The device finds less favour with Science students. Arts students have more trouble in remembering facts.

(6) *Taking class notes*: Arts students are more particular about keeping their notes together (54:32) and taking elaborate notes in the class (79:58). But 43 per cent of Arts and 29 per cent of Science students take notes because the teacher wants them to do so. Adding one's own information to class notes is found in 47 per cent of Arts and 36 per cent of Science students. 32 per cent of Arts students do not use their notes (Item 48).

(7) *Social life and study*: More Arts students study with others rather than alone (32:23). Interference by visits from friends, parties, cinema etc. is met with more in the case of Science students. About 16 to 18 per cent students feel that college drama and debates consume a lot of their time. Majority of the students are regular. Only 2 to 4 per cent of students miss classes.

(8) *Examination*: 38 per cent of Arts and 31 per cent of Science students study late at night before the examination. Cramming is widely prevalent (61 per cent Arts and 67 per cent Science). Finding the examiner and guessing the question paper is resorted to only by a small number (13 per cent Arts and 8 per cent Science). 'About one-third of the students depend on 'bazar' notes and notes from their friends. 50 per cent of Arts and 47 per cent of Science students claim to study regularly. 94 per cent and 88 per cent in Arts and Science respectively read the question paper well. 37 per cent students in Arts write the answer in the outline form before writing it in full. 51 per cent of Arts and 45 per cent of Science students complain that they cannot finish the paper in time.

(9) *Library*: 41 per cent in Arts and 22 per cent in Science groups spend their time in the library, when free and 40 per cent of Arts and 16 per cent of Science borrow books from the library. But there is trouble in finishing the book in time (32 per cent Arts and 26 per cent Science). Those who read periodicals constitute 44 per cent in the Arts and 49 per cent in the Science group. A Science student is found on an average to read 1.44 daily papers, 1.21 weekly and .92 monthly magazines, whereas an Arts student reads .97 daily papers, .55 weekly and .31 monthly magazines.

(10) *Laboratory*:

(1) 47 per cent of the students come prepared with their experiments.

(2) Students who have to depend, (consult sometimes or never consult the instructor) constitute 37, 40 and 3 per cent respectively.

(3) 63 per cent of the students take delight in performing the experiment.

(4) A large majority keeps the apparatus well-arranged (80 per cent.)

(5) 28 per cent of the students perform the experiment mechanically.

(6) 36 per cent of the students enter the observations directly in the note book.

(7) 25 per cent of the students say that they have to cook results 'Always' or 'Most often'.

RECOMMENDATIONS

(1) Effective study habits can be much improved, if detected in the beginning. This can be done through (a) survey tests and questionnaires administered at the time of admission, (b) interviews, (c) direct observation of the pupil's attitude towards his study, his college, success or failure.

(2) Educational and vocational guidance should find a place in the colleges.

(3) Ample information on 'How to Study' should be available to students.

(4) Planning studies and budgeting time should be emphasised.

(5) The college should keep a watch over the needs of rearrangement of living conditions, sleep and diet of students. Cheap hostel accommodation should be available.

(6) The students should be warned against indulgence in extra-curricular studies to the detriment of their study, time and effort.

(7) Attitude towards examinations should be modified. Cramming should be tried to be replaced by intelligent understanding.

(8) Library should be made an attractive place for the students to pass their time by (i) displaying new arrivals, (ii) providing an easy access to books through open shelf, (iii) adjusting the library house, and (iv) encouraging browsing over books to develop initiative.

(9) Reading besides the text-books should get some credit.

(10) The students' interests should be awakened in current affairs, games and sports, music and art.

(11) To meet individual differences, tutorials and seminars should be encouraged.

An Investigation into the Class-room Problems encountered by Student Teachers

By H. S. Srivastava

The present study has been taken up to give the student teachers an idea of the nature of class-room problems that usually occur during teaching through the analysis of a few practical illustrations, so as to acquaint them with some of these and to equip them to face the particular problems that may confront them, to whatsoever extent it may be possible, with greater confidence and with greater success.

A class-room problem, for the purposes of this investigation, has been defined as "a situation, cropping up in the course of instruction as a resultant of any or some of the many factors that act on teaching, providing a danger to the approach, purport or the unity of the lesson".

It is to study the causes, nature, kinds and solutions of these problems that the present endeavour has been made. Towards this end the analysis of the actual problems has been taken up, so as to include:

- (1) the situation from which it arose,
- (2) the cause or causes that led to it,
- (3) the consequences that it led to, and
- (4) the suggestions—preventive or remedial.

PURPOSE OF THE PRESENT STUDY

The primary purpose of the present pursuit is to aid the student teachers to remove their false fear in facing problems by giving them an opportunity to understand that the class-room situations are not impossible to face, although it may be a little difficult to do so and not insolvable although it may be a little tedious to try.

PRESENT PROCEDURE

Observation and interview have in brief been the chief techniques employed in gathering the data for the present report. The observation of lessons has been widely spread over to various subjects and among subjects, their various aspects.

The suggestions offered constitute the academically empirical suggestions of the members of the Institute staff and the practical hints of the subject teachers of the school, besides the investigator himself and the content of books.

The lines of approach suggested under the various problems are not claimed to be absolute. They are just one of the many. The classroom problems, encountered by the B.Ed. students (studying during the session 1956-1957) of the Central Institute of Education, Delhi, forms the basis of the study.

Classes VII and upwards in the Higher Secondary School ladder were taken up for observation. These classes were taken from 14 Boys' schools, Girls' schools and Mixed schools of Delhi.

ANALYSIS AND CLASSIFICATION OF PROBLEMS

Having collected the data of the problems, they were analysed so as to bring to the fore, the causes responsible for the same and the consequences they led to. Suggestions preventive or remedial, whichever were possible were then given, for the improvement of the lesson.

The problems so analysed were classified in the following way: ...

A. Problems of non-comprehension.

(a) That could be foreseen.

(b) That could not be foreseen.

B. Problems of discipline.

C. Problems of deviation.

D. Problems of time-budgeting.

The multiple causes of classroom problems in respect of the present study can be classified as under:

1. *Preparation and Planning of Lessons.*—This is a factor of primary significance in the ultimate success or failure of a lesson and it follows as a corollary that a large majority of problems that crop up in the course of teaching may be directly or indirectly attributed to the manifold aspects of this one factor:

(a) An indiscreet selection of subject matter which may be either too elementary or complicated with respect to the pupils' standard of attainment.

(b) Insufficient time and contemplation given to the planning of the lesson and consequential, haphazardness, and lack of self-confidence in the mind of the teacher.

(c) Vagueness regarding the exact aims and purposes to be achieved in the course of teaching.

(d) An erroneous conception of the method to be pursued for the realisation of the specific aims, if any.

2. *Execution of the Lesson.*—Despite the fact that lessons may have been planned with the utmost caution, in respect of teaching and method, yet the presence of certain classroom problems which may have cropped unavoidably may be accounted for by the teacher's faulty execution.

(a) The adoption of a teaching procedure or method that does not cater to the mental needs and interests of the children to be taught and therefore, responsible to the further growth of classroom problems.

(b) The adoption of a teaching procedure not in keeping with the nature of the subject to be taught e.g. certain lessons may call for a psychological approach, others may require a logical arrangement or chronological presentation.

(c) The adoption of a teaching procedure, quite devoid of teaching devices such as narration, description and exposition but relying exclusively on elicitation for the realisation of its purposes.

(d) Extreme rigidity in regard to the lesson plan resulting in mechanical procedure on the part of the teacher, insufficient attention to the needs and queries of the child and the general monotony in the classroom.

(e) The adoption of a teaching method that unduly encourages passivity in children i.e. makes no demands upon the children's sense of response and co-operation in the process of teaching.

(f) The non-performance or ill-performance of experiments relevant to a right and easy understanding of the subject matter.

(g) An erroneous selection of teaching aids for purposes of the same, leading to added confusion among the children rather than explicitness.

3. Unfavourable teaching conditions: e.g. noisy surroundings, ill-lighted rooms, tents, etc.

4. Physical or mental disability in the teacher and the taught.

Out of these, there are some that can be avoided in anticipation, if proper care be taken; and others can be surely surmounted through the development of the teaching skills.

A Study of the Examination System in India since 1835

By J. N. Das

INTRODUCTION

The subject under study is one of the oldest and vexed problems of education in India. The problem of examination, which has been causing deep concern since the beginning of the present century, has finally posed for solution after the independence of the country.

The written examination system was not known in India before the advent of the British. It came in the wake of the English system of education in the country. The investigator has tried to trace the origin of the present system of examination in India—its development, nature and characteristics.

An attempt has also been made to investigate into the values and short-comings of the present system of examination, including the needed changes in its scope and concept.

PURPOSE OF THE STUDY

The system of education has a determining influence on the economic progress of a country. Consequently, the emergent India, while planning and reconstructing her economic development through her Five Year Plans, must undertake the task of reorganization of her educational system. Must she, even for the success of her economic plans, build her human resources through the improvement of the quality of education, and thus, secure the participation and service of the greatest number of people at various levels of constructive leadership.

This all-important problem of reorganization of Indian education is closely linked with the reform of her examination system. Impelled by a desire to know the problem agitating the mind of the educational and political leaders of India for a pretty long time, the investigator has embarked upon the present study.

PROCEDURE ADOPTED

The investigator has applied historical method in the present investigation. Accordingly, the following steps were followed:

(1) Firstly, the present system of examination was subjected to a process of critical analysis in the light of current findings and comments on the subject, as embodied in the critical literature and periodicals.

(2) Next, followed the historical survey of the examination system since 1835, on the basis of the available documentary materials, both primary and secondary. The survey was directed at finding out—how and when the present examination system had acquired the defects for which they are charged to-day.

Further, the commissions and committees and other agencies, that went into the enquiry of the examination system from time to time, were also incorporated for discussion in this study; for, they had all attempted to reform the examination system, in the light of their findings. These literature of different schemes of examination reform mark important stages in the criticism and reform of the examination system in this country.

(3) Thirdly, the modern trends and practices in examinations of the U.S.A. and the U.K. were studied to see how far India might derive benefits from the experiments, and experiences of these countries in reforming the existing examination system. Further, the impact of the new-type examination and the development of objective tests in India were also discussed in this study. Furthermore, the new and the old types of examination were compared and contrasted with their characteristic advantages and disadvantages, so that our relative leanings towards either of them might be properly evaluated. Thus, a ground was prepared to examine the various schemes of examination reform available in India.

(4) Lastly, the different schemes of examination reform were evaluated to in order to find out, the practical difficulties in their administration if there be any. An attempt was thus made to advance some concrete suggestions in the context of the present examination system. Finally, a special plea was made before the Union and the State Governments for carrying out a minimal planned programme of examination reform on an experimental and exploratory basis in some limited areas under their control.

FINDINGS OF THE INVESTIGATION

(1) On analysis of the present system of examination, it was found that the system, besides being a defective technique of evaluation in several ways, is further responsible for causing a host of educational and social problems of grave consequences.

(2) By tracing the origin of the present system of examination, conclusion was drawn that the system was adopted, in the first instance, on the English precedent by the English rulers of the country in their anxiety to popularise the western system of education in India through

English. Further, it was found that the system grew and gathered around it a few characteristic vices during 1835 to 1882. It developed subsequently further into a notoriously rigid institution as a direct consequence of the payment-by-result system, advocated by the Education Commission of 1882 for furthering the cause of English education in India. Thus, it went on ever developing until 1904, when it began to be confronted with severe criticisms. The period that followed was characterized by several attacks on the examination system in India with a view to reforming it. The movement has now ushered in a critical period, demanding a final judgment from the present government of the people, under a democratic constitution, towards the implementation of the age-long reform, so zealously pursued since the beginning of the present century.

(3) By surveying briefly the reform movement of examination in the U.K. and the U.S.A. and its impact on the Indian system of examination, it was found that India was lagging far behind in her reorganization towards building large-scale evaluation programmes for the country. Incidentally the investigator indicated the possible ways of organization after the examples of the above mentioned countries and expert opinions of ours. Further, the entire stock of present position of the testing programme in India, in relation to the demands and requirements was presented, urging thereby for a concerted action on the part of all those concerned.

Furthermore, after comparing and contrasting the advantages and the disadvantages of the old and new types of examination (together with the expert opinion, local and foreign), it was found that the former must be given a due share of importance along with the latter.

(4) In the light of our knowledge of the trends and practices in examination in the U.S.A. and the U.K. and their impact on the Indian system of examination in the form of various reform schemes, an attempt was made to arrive at some common decision. It was suggested that implementation of any of the following schemes might solve adequately the problem of examination reform in India:—

They are (i) the Radhakrishnan Commission, (ii) the Mudaliar Commission, (iii) the Second Narendra Deva Committee, together with other "examining bodies", namely, (iv) the International Team of Experts (1954), and (v) the Bhopal and (vi) the Aligarh Seminars on Examination.

Next, it was argued that the difficulty lies not in the impracticability of the scheme, but in the inability of the government to implement them. It seemed to the investigator that the present Central and State Governments are

faced with a graver problem of economic development of the country, and are too much preoccupied with it to give more attention or money for ensuring a radical change in the administrative set-up of the educational system. Accordingly, the investigator advanced the following proposals.

A FEW SUGGESTIONS REGARDING THE EXAMINATION REFORM

The execution of any of the examination reform schemes stated above will entail a huge cost, require a large body of trained personnel, and a certain organizational machinery to work out the plans. None of the planners has worked out the administrative details regarding the time, cost, and personnel that would be needed. Anyway, no State Government will probably be able to implement even the minimum programme in entirety throughout the State. In this respect, the present investigator has the following suggestions to make:—

The State Government should make a scheme (in the line of Five Year Plan) to execute the examination reform in a limited area on an exploratory and experimental basis.

(i) On the strength of the recommendations and arguments already advanced and discussed, it will be advisable not only to reduce the number of external examinations but also to relieve some selected secondary schools (known for their high standard of organization and teaching efficiency) from the burden of external examination at the end of secondary school course. And for this, the State should advise the University or the State Board of Education, as the case may be, and pass necessary legislation to facilitate the change.

(ii) The schools so selected may be asked to carry out reforms in their home-examinations after the suggestions of the Aligarh Seminar.

(iii) The maintenance of cumulative record (containing a continuous statement of the attainments of the pupils from the Eighth Standard to begin with), and the use of such day-to-day work of the pupils in matters of promotions, should also be made incumbent upon the schools.

(iv) Further, the State Department of Education should institute a body of experts and research workers on examination (in collaboration with the training institutes, the University and the State Board of Education) to help the above schools in carrying out examination reforms, and constantly appraising the results of this new venture.

(v) This body will be further entrusted with the task of following up the students (thus exempted from external examination), to see how they fare in colleges and elsewhere, as compared to their compatriots getting through external examinations.

(vi) If such investigations yield really encouraging results, other area or areas might be taken up so as to enlarge the area of experimentation gradually.

(vii) It will be necessary to follow up results of these experiments and modify the schemes from time to time so that greatest benefit can accrue from them.

It will not be out of place to mention here that J. C. Ghose, Member, Planning Commission, exhorted the Calcutta University in its recent Centenary Celebration to reform the examination system (which is causing wastages not in thousands but in hundreds of thousands) within a period of ten years to come.

The investigator further hopes that, if the Central Government can help the Local Administration of the Delhi State with finance and expert advice to carry out the above project in the High Schools or Higher Secondary Schools of the State, it will serve as an example and incentive for the State Governments to follow and emulate with advantage.

An Investigation into the Relationship between the 'Interest' and the 'Achievement' in General Science of the Boys of Class X of the High Schools of Orissa (Sambalpur, Sundargarh & Balangir Districts)

By K. B. Roy

PURPOSE OF THE STUDY

Teaching of General Science in Indian schools is very much defective and is full of drawbacks. Though the curriculum for general science has been based on the daily experiences of life of the pupils and their environment yet most of the schools in India have either ill-equipped laboratories or no laboratories. It is a constant source of amazement to hear that the schools teach General Science without laboratories and equipments.

Though the claim of General Science has been recognised beyond doubt and there has been much talk recently of adopting a new type of curriculum for General Science, according to the interest of the pupils, it still remains a problem as to how to ensure greater and better achievement in it. It is important that attainment and understanding in General Science largely depend upon number of factors and most important among them is the child's interest. Interest is the motivating force which keeps one engaged in some particular sphere of activities to acquire knowledge to one's advantage. In order to have better achievement, interest factor is most important. So it is imperative of all teachers, specially science teacher in particular, to know how far the students are interested in General Science and whether the interest factor helps them in better achievement in the subject or not, that is to say how interest is correlated with the achievement. With this end in view, the investigator has undertaken the investigation in which his long experience in teaching General Science was taken to be helpful.

THE PROBLEM

General Science is a compulsory subject up to the school final examination (Matriculation) in Orissa. The students are taught more of natural sciences, belonging to the nature, weather, plants, animals etc., in the lower grades. So the students who pass out the lower grades and come to the higher grades, have some knowledge in General Science, which has been taken into consideration when the investigator administered the Achievement Test and in finding out the Interest of the Students. In order to get a fairly correct estimate of their achievement, the choice was neither to go lower where the students might

not have formed any interest for the subject. As maturity counts in the expression of interest, obviously, the XIth class should have been the subjects of investigation. But the students of XIth Class were not available at the time of investigation as they left the school by that time. So the Xth Class boys were selected for the tests.

The scope of the investigation was, therefore, to find out—

- (1) how far the students are interested in General Science ;
- (2) how far interest is related to achievement as measured by the objective test prepared ;
- (3) how far the interest is related to the school achievement in General Science ; and
- (4) the extent of relationship between school achievement and the achievement test administered by the investigator, and
- (5) in the light of the above findings to suggest the possible ways in which interest can be harnessed to the achievement.

THE PRESENT PROCEDURE

(a) Preparation of the Interest Inventory

The investigation though important is not without difficulties. First of all, the question is, how to measure the interest in General Science. Up till now, there is no such instrument with which we can measure interest accurately. In fact, only indirectly and through inference we are able to get a better understanding of the presence of attitudes or interests.

There are two procedures which could be used to discover the presence of scientific interest.

(1) First, is to enquire into the students' interest by means of a questionnaire or self-rating scale. But honest self-rating is sometimes misleading and does not give true report of one's preferences.

(2) Secondly, to make observation and perusal of the anecdotal records of those events in which students showed interest or lack of it. Though the second procedure is fruitful, the investigator cannot do this due to want of time. So the investigator, having no other means to get a clear picture of the interest of the individual in General Science had to take recourse to prepare an inventory.

The distribution of items are as follows. The inventory consists of 150 items which are planned in activity form.

(a) There are 11 or 12 items in each of the major school subjects *viz.*, English, Mathematics, Oriya, Sanskrit, History, Geography, Civics, Drawing & Art, Physical Education and other miscellaneous activities.

(b) As the study primarily deals with the assessment of interest in General Science, 50 items on the different branches of science *viz.*, Physics, Chemistry, Geology, Zoology, Astronomy, Botany, Physiology, and Hygiene, in each six to seven items were set. The items were included in the form of scientific activity and matter of interest.

(b) Preparation of the Achievement Test

In order to serve the aims of science teaching in schools as given in the original report, the following points were considered while selecting test items.

- (a) Understanding the scientific terms.
- (b) Remembering important scientific facts and principles.
- (c) Testing functional knowledge.

Ample care was taken to cover that field of General Science which has been covered by the Xth class boys of all the schools under investigation upto the First Terminal examination. Greater emphasis was placed on the subject matter which was considered relatively important for the class by a consensus of opinion. The test consisted the following items:

True and false type	28 items
Multiple choice "	20 items
Matching	12 items

The average timing for each of the Achievement Test and the Interest Inventory was found out to be 45 minutes.

Administration of the Test

Before administering the Achievement test and the Interest Inventory, the investigator tried to get a representative sample of the boys. For this purpose 4 schools were selected in the three districts which were all Government Schools and drew students from different socio-economic status of the districts since these are situated in the district Head Quarter towns.

THE COLLECTION OF DATA

(a) *The Interest Inventory*

The inventory was administered in the last week of December, 1956. The investigator himself administered the inventory. The total number of students who were given the Interest Inventory was 230, but at the time of the final administration the number was 215 in all; and out of 215 boys, 200 cases were kept for statistical treatment.

(b) *The Achievement Test*

The Achievement Test was administered to 200 cases.

CONCLUSIONS

Following is the brief summary of the findings :

(1) The coefficients of reliability of the Achievement test and the Interest Inventory worked out by the Split-Half technique were $.81 \pm .03$ & $.80 \pm .02$ respectively which can be taken as fairly high but the correlation coefficient between the two tests is .67 which is markedly substantial. So interest is positively and significantly correlated to achievement; and achievement in any subject depends on the interest in it.

(2) Validity of the test could not be prophesied as the investigator did not have any reliable criterion which could be used for validation. But the correlation between the Interest score and school marks which is .47, shows that there is positive relationship though not high.

(3) As regards relation between the school marks and the achievement test scores r was found out to be .38 which is very low. The reasons for this have been stated before.

(4) The insignificant positive skewness on the Achievement test scores shows that there is no marked divergence of the distribution from the normalcy and the test may be taken as a good one considering the various limitations of the teaching and school conditions.

(5) The insignificant negative skewness on the Interest scores shows that there is practically no divergence from the normalcy of distribution and hence it can be inferred that the students in general are interested in General

Science and accordingly they have done well in the achievement test administered by the investigator but the interest is affected by various reasons of which teaching condition and methods of teaching are some of them.

(6) Teachers seem to take little care of the students' interest and are indifferent to the progress of the students. Their ratings in the present set-up cannot be relied upon.

SUGGESTIONS

1. Since interest and achievement in General Science have a positive relationship greater achievement may be ensured if interest is explored, properly nourished and maintained.

2. It is desirable that the teacher should try to make the teaching conditions more favourable, so that interest may be developed and student may be inclined to secure greater achievement in science.

3. The environment may be moulded in such a way that it can arouse interest in boys by organising field trips, excursions to scientific places of interest, organising science clubs, museums, etc., and new technique of teaching may be employed to develop their interest which may help them for better achievement.

A Survey of the Present State of the Organisational Patterns of Student Self-Government in the Higher Secondary Schools of Delhi

By L. K. Tripathi

INTRODUCTION

According to the modern pedagogy students should not be merely the passive recipients of knowledge ; they should be allowed to participate in the extra-curricular activities of the school for acquiring practical knowledge for being trained citizens in future life. Their training for leadership or followership becomes obvious if they are allowed to work in an organised body. This principle of organisation gives rise to the concept of Student Self-Government in schools. Good has defined Student Self-Government as "the maintenance of order and the regulation of matters of conduct in school by elected representatives chosen from the student body by the students themselves. Student Self-Government is functioning in the schools of our country in the form of Council of Monitors, Student Council, Student Parliament or the like. In some of the High and Higher Secondary Schools of Delhi, Student Council has been organised for the last few years. How the Councils of these schools have been organised, what their specific patterns are should call for study. With this end in view, the present investigator surveyed the organisational patterns of Student Council in the Higher Secondary Schools of Delhi only. He could not take up the cases of the High Schools on account of the limited time.

PURPOSE OF THE STUDY

Though the immediate purpose was to study the existing condition of Student Self-Government in Delhi schools, yet the ultimate purpose was that on the basis of the results of the study, people in the line of education would spare a time to think how best Student Self-Government could be organised in the schools and colleges of our country.

PROCEDURE ADOPTED FOR THE STUDY

The study comes under the orbit of the Normative Survey Method. It used the interview technique for the collection of the data. The data were collected from the Principals of the schools on the basis of a questionnaire.

Before the collection of data, all the Higher Secondary Schools of Delhi had been contacted to know whether they had organised Student Self-Government. It was found that twenty-five schools had been able to introduce this system up to the time of the present survey which was

conducted from October, 1956 to January, 1957. So, ultimately the present study was limited to collecting data from these twenty-five schools only.

SUMMARY OF THE RESULTS OF THE STUDY

1. The beginning of the Student Council Organisation in the Higher Secondary Schools of Delhi goes back to the year 1942. Till the year 1957 it has been organised in twenty-five such schools.

2. In most of the schools, through orientation talks attempts have been made every year to bring home to the students the aims and objectives, and the powers and duties of the Council.

3. Election by students and nomination by the Principals—both the courses of action have been followed for selecting members for the Council.

4. Except in one school, members have been elected to the Council from Class Sections. In one school, they have been elected from Home Rooms.

5. The Home Room Organisation has not been given due importance in the schools. Though twenty per cent schools have the Home Room Organisation, members of the Home Rooms have not been represented in the Council except in one school only.

6. In eighty per cent of the schools, the Council does not include the whole student body because in these schools students of junior classes are not represented in the Council.

7. Members of the Council have been elected in most cases from big groups. This shows that the average student does not feel that he has been represented in the Council.

8. In seventy-six per cent schools there are staff representatives in the Council; but in most cases they have been nominated by the Principals. Here the rights of the staff for electing their own representatives have been ignored.

9. The Councils of the schools can be divided into two types—(1) Types according to the source of membership and (2) Types on the basis of organisation.

According to the former types, members have been elected to the Councils from Class Sections and Home Rooms. There are no other sources like School Clubs and School Societies from which representation has been made to the Council. Students have been, in most cases, assigned

to Home Rooms on the method of vertical sectioning. There are Home Room Committees in eight per cent schools; but they are not represented in the Council.

The latter types of the Councils are the types which have Class Officers like Monitors and Captains, and also follow the National Government pattern. In twelve per cent schools the Council has been constituted by Class Monitors. In eighty-four per cent schools the Council is the copy of the National Government i.e., it has a Cabinet of Ministers; and in the remaining sixteen per cent schools the Council is ornamented by a Central Body of Executives like President, Secretary and Executive Members.

10. In sixteen per cent of the schools students are divided into political parties: Congress and Opposition and are led to adult political campaigns in matters of election.

11. As regards the internal organisation of the Council; each Council has set up different Committees charged with certain duties to perform. Twenty per cent of the schools have Student Court with student judges. The usual number of judges in the Court is three.

12. Most of the schools have provided a written oath to be taken by the members of the Council in the installation ceremony. The term of the Councils of all the schools is one year. The Principals, though retain the veto-power, have never exercised it and have never dissolved the Council on any ground. On the whole, the Principals of the schools of Delhi are found to have a good will to infuse into the minds of the students the spirit of democracy by allowing them to share the common responsibility of the school activities equally with the school personnel.

CONCLUSIONS AND RECOMMENDATIONS

It has been evident from the present study that the students have been given greater share in the organisation of their own affairs. It has kept them busy and engaged and employed their energies in useful activities. It has trained them in the art of citizenship and self-discipline which would help them to organise the society in later life. The students of these schools are enjoying the joy of self-realisation, so to say. All these answer the question why Student Self-Government should be introduced in the school of our country.

Now the question arises how to organise Student Self-government in the best possible way. Some educators suggest that the Home Room System should be the basis of

organising Student Self-government in schools. Baker defines Home Room as "a regular school period, usually weekly, in which the teacher or sponsor meets with an organised group of students for the purpose of becoming intimately acquainted with members, and through individual contacts and programmes and activities, promotes the development of certain personal ideals, knowledges, and habits not regularly provided for in the teaching of traditional school subjects." There will be provisions for at least three Home Room periods per week. The Home Room periods should be placed in the earlier part preferably in the second or third period of the time table, in view of the fact that students at that time would attend them in cool mind. The whole student body should be divided according to a number of Home Rooms on the basis of vertical sectioning because this method acquaints the junior pupils with the senior ones. Each Home Room should not consist more than thirty-five members. Each Home Room will elect its representatives to the council which, again, should not be comprised of more than forty to fifty members. A big council is a mob; so, it should have a reasonable size. The council should, also include the school as a whole i.e., it should represent the interests of the staff, alumni, clubs, societies and so on. The Principal being the Head of the school should not be a member of the council. The Principal has to delegate power to the council, not to transfer it. The rudimentary principle of Student Self-government is democracy. This principle works well in the student committee if the Principal of the school possesses democratic attitude.

An Introduction of the Reading Interests of Boys and Girls of Class X of Delhi State in Newspapers and Periodicals

By L. Ray

PURPOSE OF THE STUDY

Purpose determines action. The present study has in it a definite purpose. The study has been undertaken with the purpose of finding out the reading interests of the adolescent boys and girls with the ultimate end in view that its results can be utilized by teachers to guide the adolescent boys and girls in the development of proper interest in the reading of newspapers and periodicals.

Other specific purposes are as follows :

- (a) To find out whether the boys and girls of class X are interested in newspapers and periodicals.
- (b) To find out whether they read them or not.
- (c) To find out how many of them read them regularly.
- (d) To find out whether there is any difference between the reading interest of boys and that of the girls in this respect.
- (e) To see whether there is any relation between their hobbies and interest of reading newspapers and periodicals.
- (f) To see whether they get newspapers and periodicals from school, from home or from any other sources.
- (g) To see the amount of guidance given by the teachers in the school and parents at home in order to see the relationship between this guidance and reading interest of the adolescents.
- (h) To find out the opinions of the teachers and the librarians about their attitudes towards these two media of communication.
- (i) To find out what these teachers and librarians have to suggest for the improvement upon the reading interest of this adolescent group.

HYPOTHESES

Hypotheses formulated by the investigator are as follows :

- (1) Our students of high and higher secondary school do not know how to make the proper use of their leisure time.
- (2) Some of them do not at all read newspapers and periodicals.

- (3) Most of them choose the newspapers or items of newspapers or periodicals haphazardly without any guidance.
- (4) They have not formed their reading interest in newspapers and periodicals.
- (5) Their parents, relatives, or teachers do not help in their choices of reading materials from newspapers and magazines.
- (6) They do not get proper supply of newspapers and periodicals either at home or in school.

THE PRESENT PROCEDURE

(a) Method Used

The method followed in the present investigation is the "normative survey method" as the information about present activities is aimed at for guiding us in our future plan.

Here in this study ten schools situated in Delhi were surveyed to find out the prevailing conditions of the reading interest in newspapers or periodicals of boys and girls of class X, so that policies and plans for development of proper interest with the supply of proper facility, ample opportunity and the atmosphere both in the family and in the school can be guided in the immediate future.

(b) Collection of Data

The data were collected by means of three questionnaires, one for the students, one for the teachers and the other one for the librarians of the same schools under survey. In order to verify the answers given by the students and to have the suggestions of the teachers and the librarians for the development of reading interest of these students, questionnaires II and III were issued to them. The teachers who teach the main subjects in the Xth class were selected as respondents.

TABLE I
The distribution of students, age-wise

Schools	A	B	C	D	E	F	G	H	I	J	Total
Number of students	30	26	41	30	27	36	27	40	28	25	310

TABLE II

The distribution of students, age-wise

Age-group	14+	15+	16+	Total
Boys	56	75	25	156
Girls	62	72	20	154
Total	118	147	45	310

SUMMARY OF FINDINGS OF THE STUDY

In summarising the results of this investigation the limitation of the sample must not be forgotten. The results are to be considered in relation to the schools under survey, though one may expect more or less the similar result in the adolescent boys and girls in other schools too. Findings of this investigation are the following :

1. Reading occupies a very important place in the free time activities and hobbies of the boys and girls of class X. 79 per cent of the boys and 66 per cent of the girls named reading as one of the free time activities.

TABLE III

No. of students in percentage naming different kinds of leisure time activities

S. No.	Activities named by the students	Boys (in percentage)	Girls (in percentage)
1.	Reading	79	66
2.	Playing	47	23
3.	Collection	8	4
4.	Gardening	3	6
5.	Photography	3	5
6.	Music	3	7
7.	Needle work	..	10
8.	Knitting	..	8

2. Very few schools provide any regular period for free reading. Though some of the boys and girls get time after doing school work, yet most of the boys and girls do not find sufficient time. 78 per cent of the boys and 86 per cent of the girls get very little time for their free reading.

TABLE IV

No. of students in percentages showing the amount of time spent on their free reading

Pupils	Much	Little	No Time	Blank
Boys (in percentages)	14	78	8	..
Girls (in percentages)	9	86	3	2

3. English is predominant over mother-tongue in the field of free reading. 99 per cent of the boys and 94 per cent of the girls read in English.

TABLE V

No. of students in percentages reading in different languages

Pupils	Hindi	English	Bengali	Punjabi	Urdu
Boys (in percentages)	85	99	34	4	8
Girls (in percentages)	95	94	5	17	1

4. A good number of boys and girls who read newspapers and periodicals regularly or sometimes, get their reading materials from both their homes and their schools, though some of them do not get newspapers at home at all.

5. Elders at home do not discuss regularly with these students important news items. Moreover, English newspapers are not kept in most of the homes. This shows that parents are not very much interested in their children's reading of the daily newspaper, and they have no fascination for English papers. Some parents do not know how to read and write their own mother tongue; so there is no other alternative.

6. Story books, newspapers, magazines are preferred by boys and girls as reading materials for leisure time reading. More boys than girls read newspapers and magazines.

7. English papers are read more than those in the Indian languages by these boys and girls both in the school and at home. The Hindustan Times is the most popular paper. 74 per cent of the boys and 82 per cent of the girls read the Hindustan Times. On the average, most of the boys read two newspapers daily.

8. Head lines or front page news about our country are read by most of the boys and girls who read newspapers. But more boys are interested in sports and more girls are interested in cinema corners and radio programmes.

TABLE XI
Interest bias of boys and girls

Subject matter	Percentage of boys	Percentage of girls	Difference between Percentage	Sd.	t-ratio
Head-lines or Front page.	84.98	87.45	2.47	4.1	.60
News about our country.	75.54	80.34	4.80	4.9	.98
Foreign News	65.33	58.33	7.00	5.8	1.21
Sports	83.33	42.42	40.91	5.2	7.87*
Magazine Sections.	53.33	49.24	4.09	5.9	.69
Readers' Letters	19.33	16.67	2.66	4.5	.59
Weather Charts	53.33	46.97	6.36	5.9	1.1
Cinema Corner	47.33	62.12	14.79	5.8	2.5*
Radio Programme	44.67	56.06	11.39	5.9	1.9
Anything else	10.00	5.3	4.70	3.8	1.2

*Statistically significant at .05 level.

9. Boys and girls read quite a number of magazines : the most popular being Illustrated Weekly of India, Sports and Pastime, Hindustan, Chandamama, Desh, among the boys; and Illustrated Weekly, Filmfare, Dharmayug, Sarita, Woman and Home among the girls. 39 per cent of the boys and 60 per cent of the girls read "Illustrated Weekly".

10. Boys spend more time on newspapers than girls and they also start the reading of newspapers at an earlier age than girls.

11. These students read magazines for general knowledge, improvement of language, for enjoyment and for materials of special interest.

12. There is a difference between the felt need for newspapers by the boys and the girls and between the students and the teachers. Some students think that the supply of newspapers in the school is sufficient.

13. Teachers seldom discuss the news items with the students. Most of the schools do not issue magazines for reading at home and very few students give suggestions for buying magazines in the school. So lack of proper facility is conspicuous.

14. Illustrated Weekly of India and Dharmayug are mostly named by the students as the magazines they would like to buy if they get money.

15. Girls are more fond of stories ; whereas pictures and articles are more favoured by the boys.

16. Home atmosphere of those students who do not read newspapers and magazines is not congenial at all. Some of the parents do not let their daughters read magazines

17. In most of the schools newspapers and magazines are kept on the stand, on the table and on the open shelf.

18. The supply of magazines in all the schools is not equally sufficient. The number of magazines supplied in the school varies from 7 to 40.

19. Some students prefer magazines to story books according to the opinion of 62.5 per cent of the librarians.

20. Many schools provide facilities like debate, literary competition for the encouragement of reading habits.

21. Most of the teachers are of the opinion that reading of newspapers and magazines helps the students to have better power of expression and language.

An Investigation into the Interest Evincd and the Difficulties Encountered in Learning English by the Higher Secondary Students of Delhi Schools .

By P. P. Menon

INTRODUCTION

The present study is an attempt to find out the interests of the pupils and the difficulties they encounter in the process of learning the language. The term 'interest' has a wide connotation. Here it is taken to mean the verbal expression of the interests of the pupils. Similarly, whatever the pupils think they find difficult is denoted by the term, "difficulty".

Interests can be revealed from many angles. This study deals only with expressed interests of the pupils. It is possible that there may be wide discrepancies between what they say they like to do and what they do well. Nevertheless, it is worthwhile to explore the clues which lead to the knowledge of the areas of the language where their interests lie.

The assumption on which the investigation is based are that the pupils are interested in the language, but that standard of their achievement is not up to the mark. The present work has been undertaken primarily to find out :

- (a) whether the pupils are really interested,
- (b) if they are, which areas of English interest them more, and
- (c) what factors are responsible for the falling standards.

The study was confined to the Higher Secondary pupils of the Delhi schools which begin the study of English from the sixth class.

THE PRESENT PROCEDURE

To collect the data, a questionnaire was constructed and administered to 200 pupils of ninth, tenth and eleventh classes of eight Higher Secondary schools. Of these four were boys' schools and the others were girls' schools.

The questionnaire was framed on the basis of the following factors contributing to pupils' interests and difficulties.

- I. The questionnaire contained a list of alternatives suggesting the reasons for studying English, so as to bring out the aims as understood by them.

II. There were a series of questions to find out their interests in the three skills of speaking, reading and writing.

(i) Another group of questions dealt with their interests in the activities involved in each skill. The classification of activities under each skill is given below:

(a) *Speaking*: conversation, poetry recitation, prose recitation, debates, drama & reading aloud.

(b) *Reading*: stories, lives of great men, *scientific* essays, humorous essays, and essays describing travel and adventure.

(c) *Writing*: descriptive essays, narration of a story, reflective essays and imaginative essays.

(ii) For a further analysis of their interests, the various areas were taken up. They were:—

(a) Prose

(b) Poetry

(c) Grammar

(d) Translation

(e) Composition.

(iii) From these generalizations, more particular information was sought regarding the types of prose and poetry lessons most interesting to them.

(iv) Another question was included with a view to finding out the pupil's interest in vocabulary.

III. The remaining part of the questionnaire was concerned with the difficulties the pupils encounter. The difficulties the questionnaire sought to reveal were in connection with the different aspects of English such as

(a) Prose

(b) Poetry

(c) Translation

(d) Grammar

(e) Composition

The following are the reasons given by the pupils for studying English:

TABLE NO. I

Showing the reasons for studying English

1. It is compulsory	7.5 per cent
2. It is essential for getting a job	16 "
3. Many people know English.	5.5 "
4. It will increase your general knowledge	48.5 "
5. You like it	22.5 "

The following are the pupils' preferences for the three skills.

TABLE NO. II

Showing the pupils' preferences for the three skills

	Very much	Somewhat	Not at all
1. Speaking in English.	69. Per cent	27 Per cent	4 Per cent
2. Reading in English	55.5 "	38 "	6.5 "
3. Writing in English	39.5 "	41 "	19.5 "

Those who do not like to write in English give the following reasons:

1. 1.5 per cent, because they do not like writing at all.
2. 3 per cent, because their hand-writing is bad.
3. 2 per cent, because of weak spelling.
4. 4 per cent, because the teacher finds too many faults with their work.

Pupils also show the percentage of preference for activities involved in speaking:

TABLE NO. III

Showing the percentage of students' preference for activities involved in speaking.

Activities	Preferences					
	1st	2nd	3rd	4th	5th	6th
a. Conversation	23	21.5	17	19.5	12	7 = 100
b. Poetry Recitation	14.5	15.5	22.5	16	21	10.5 = 100
c. Prose Recitation	2.5	14	12	21.5	29.5	20.5 = 100
d. Debates	17.5	20	19.5	13.5	14	15.5 = 100
e. Drama	32	19.5	14.5	14.5	10.5	9 = 100
f. Reading aloud ¶	11	11.5	14	13.5	12.5	37.5 = 100

The following are the percentage of preferences for reading materials.

TABLE No. IV

Percentage of students' preference for reading materials

Reading materials	1st	2nd	Preferences 3rd	4th	5th
a. Stories	51.5	17	10	10	11.5 = 100
b. Lives of great men . .	21.5	26	27	17	8.5 = 100
c. Scientific essays . .	8.5	16.5	18.5	23.5	33 = 100
d. Humorous essays . .	5.5	16.5	20	30.5	21.5 = 100
e. Essays describing travel adventure	12.5	25.5	23.5	22	16.5 = 100

The following are the percentages of preferences for the different aspects of the language.

TABLE No. V

Percentage of students' preference for the different aspects of the language

Aspects of the language	1st	2nd	Preferences 3rd	4th	5th
a. Prose texts	25	26.5	15	18	15.5 = 100
b. Poetry selections . .	28.5	20	15.5	18.5	17.5 = 100
c. Grammar	23.5	11.5	18	21	26 = 100
d. Translation	13.0	23.0	18.0	23.5	22.5 = 100
e. Composition	9.0	20.5	32.5	20.0	18.5 = 100

THE FINDINGS

The investigation has revealed that a vast majority of the pupils are interested in English because they realize that a knowledge of English is essential for bettering their own chance of success in any field of activity.

The pupils' desire to achieve an adequate mastery over the three skills : speaking, reading and writing is also clearly revealed. Of the three skills, speaking seems to appeal most. In the activities involved in speaking, a marked preference is more towards drama, conversation and debates than towards recitation and reading aloud.

As regards interests in the reading material, stories are greatly favoured, followed by biographies. Strangely enough, scientific and humorous essays have the least preference though essays describing travel and adventure appeal to some.

In writing English, the pupils' interests are stuck in a groove. They show a definite reluctance to leave the beaten track and venture on something novel. But new ideas do appeal to them as for instance, writing to a foreign pen friend. Evidently, the pupils do not find any relationship between writing to a pen friend and writing in the English class room. It indicates that language learning is still a compartmental process and it has not been possible to make the pupils understand that what they learn in a prose lesson can be carried over to a grammar class and what they learn in a composition class can help them to write a letter correctly.

It is seen that a rigid adherence to the text books in English has led to a very narrow conception of the aims of language learning. A reasonable mastery over a text and the possession of sufficient knowledge to answer the questions arising out of the text is given more importance than the acquisition of facility in the expressional skills. What is more unfortunate is that very often pupils in the top class have to work again and again through the same books, the purpose of such a policy being to prepare the pupils for the all-important final examination. All initiative is curbed and the chief pupil-activity is committing a host of sentences and ideas to memory. The pupils appear to be so used to the texts that language learning is always associated with the texts they follow in the class. In spite of all the loving care the texts receive in the class, many of the pupils find them difficult which indicates that the silent inactive array of printed symbols are not transformed into living speech, which is the main function of the texts to be realized in the class room.

When the objectives of foreign language teaching are not achieved, the pupils face the difficulties. Of these, the difficulties regarding grammar stand out predominantly. The study reveals that learning of formal grammar is treated as an end in itself and not as a means to language study. Consequently, the rules and definitions learnt in the grammar class are only passively absorbed by the pupils and seldom applied to speaking, reading and writing the language.

In spite of all the modern researches done on translation which disproved its efficacy in language learning, one wonders why it is still retained in the curriculum. But

suprisingly, there it is, still present and is impending the progress of pupils and making them disinterested. The investigation clearly shows that translation is found very difficult by the pupils particularly because they cannot recall the equivalent words. English being a foreign language, the structures and languages are very different from those of the pupils' mother-tongue and translation involves a laborious process of trying to find words which will convey the same meaning in a foreign tongue.

In conclusion, it may be said that English is a subject in which pupils are greatly interested. But though they are interested, it is also seen that they experience many difficulties because of lack of understanding of the essential objectives of foreign language teaching which in its turn has led to a wrong approach to the teaching of English.

With a re-orientation of the aims of teaching English, real progress can be achieved because the main ingredient, which is interest, is already there. Without interest, success is unobtainable. The pupils are for studying the language and once the teaching is geared to the interests of the pupils, foreign language learning will have proved its usefulness.

A Study of the Adjustment of Delhi University Students To Campus Life

By P. R. Ramcharan

INTRODUCTION

The potential leaders of Indian thought and life are found among the college students now being trained in Indian Universities. The miniature society of college life closely parallels life in the surrounding culture, and offers unequalled opportunity for these students to gain excellent experience in democratic citizenship. "There are many things learned which are not taught, and some which cannot be unlearned,"—ideals, values and attitudes are caught through the social atmosphere more than they are learned through classroom instruction.

Residential living entails the sharing of common interests and activities, and the willingness to give and take, incorporating independent young people from all parts of the country and from many other lands. Representatives from diverse social, economic, cultural, and geographical backgrounds come together under one roof, gather together as one lively company, and pass through a profoundly disturbing yet wonderfully exhilarating experience, rarely repeated in later life for these students. They include a real cross-section of the university population, and the adjustment they make to campus life is of vital importance.

PURPOSE AND SCOPE OF STUDY

Delhi University is now 35 years old, and during the last two decades a corporate campus life is gradually being realized on the present location. The adjustment college students make from home to the new situation of campus life may be determined by their attitudes expressed and interests displayed concerning various aspects of hostel living, courses of study and socio-recreational activities, and these are used as the bases for evaluating adjustment in this investigation: A study of the Adjustment of Delhi University Students to Campus life as revealed by their Attitudes and Interests. The study has been limited to the undergraduate student population residing in hostels situated in the campus area.

The following purposes were kept in mind while this investigation was being conducted:—

1. Appraisal of existing trends of students' attitudes regarding various aspects of campus life with relation to—

- (i) residential accommodation,
- (ii) mess facilities,
- (iii) health facilities,
- (iv) library facilities,
- (v) studies,
- (vi) socio-recreational and cultural activities,

2. Gathering of information concerning—

- (i) family details,
- (ii) linguistic background,
- (iii) reading interests.
- (iv) hobbies,
- (v) vocational plans,
- (vi) religious interests,
- (vii) interest in politics.

3. Possible comparative studies of—

- (i) academic year levels and adjustments,
- (ii) sex and adjustment,
- (iii) family background and adjustment.

PROCEDURE ADOPTED

The normative survey method was adopted because of the type of study to be made. Of the various techniques, the questionnaire was chosen as the most convenient and practicable data gathering tool by which a large number of students could be persuaded to give information in ways that could be assessed in qualitative as well as quantitative terms. This was supplemented by informal interviews of student leaders for corroboration of evidence and information about existing facilities.

1. Planning of the Questionnaire and Selection of Items:

A. A survey of pertinent literature in the field was made; informal interviews were conducted among students; and observations were made of student activities on the campus.

B. A preliminary draft of the questionnaire was constructed, and a pilot study was conducted among a small group of hostel students at the Central Institute of Education, Delhi.

C. Returns were assessed for errors, ambiguities, and irrelevant material. Suggestions for improvement given by 8 competent authorities who studied the questionnaire were utilized. Final alterations and revisions were made on the bases of these.

D. The final form of the questionnaire consisted of 122 items divided into 3 main sections dealing with

- (i) personal data including personal and family details, scholastic details, linguistic information, and vocational plans ;
- (ii) interests and activities comprising on and off campus activities, reading interests, friends, house of sleep, hobbies, and membership in organizations ; and
- (iii) attitudes and interests concerning residence life in the areas of hostel, mess, health, courses of study and the use of the library, and socio-recreational activities.

2. *Sampling*: The 8 institutions accommodating undergraduate students in hostels on the campus were St. Stephens College, Miranda House, Hindu College, Hans Raj College, Ramjas College, Kiroi Mal College, Indra Prastha College and Shri Ram College of Commerce. The population numbered 410, including 281 men and 129 women. Questionnaires were distributed to these students, and after rejections, 232 returns were assessed.

3. *Administration*: This was done personally during a series of after-dinner sessions. The completion of the whole form took each respondent approximately 20 to 25 minutes.

4. *Interviews*: Corroboratory information concerning areas covered in the questionnaire was obtained through informal interviews of 8 students, who were leaders, each lasting approximately 10 to 15 minutes.

FINDINGS AND IMPLICATIONS

In view of the findings of this appraisal study of existing trends in some phases of campus life, certain tentative conclusions were arrived at, which were limited in their application to the section of the population sampled.

1. The influence of family background on adjustment did not seem significant. It appeared, however, that the first children in a family had the best chance of attending college, and the opportunities decreased as the size of the family increased.

2. Approximately one-half of the students had made post-graduation plans, and their choice of vocations was limited in range.
3. The many advantages of residence life were not fully utilized by the students. They were satisfied with many aspects of hostel living except for general service facilities, dining service and meals, provision for medical facilities; and in 2 hostels, the common room facilities.
4. In the area of studies, positive attitudes were registered for courses, lectures and professors, but there was dissatisfaction with tutorials and faculty-student relationships.
5. The college libraries were utilized by a majority of students; the Delhi University Library by approximately one-half of the group; and a significant minority utilized no library services. Fiction was the most popular choice of leisure-time reading, specially among the women.
6. Students were engaged in a wide variety of hobbies, numbering 22. Favourite pastimes were reading, sports and games, musical activities, photography, and stamp-collecting.
7. More students preferred to live on the campus rather than away from the campus, but did not express marked preferences for campus activities.
8. Socio-recreational life was regarded as less than satisfactory. Students often participated in extra-curricular and leisure-time activities, but found opportunities for social life on the campus limited, and facilities for indoor and outdoor recreation less than satisfactory. A minority group of students affirmed membership in organizations, most of which were campus organizations. Student Unions were rated fairly satisfactory. There was average interest shown in religion, and little interest in politics.
9. The effect of increasing experience, age and maturity of interests displayed and attitudes expressed was apparently much less than one might expect, and was shown chiefly in a few specific interests and attitudes.
10. The effects of sex differences on attitudes and interests were insignificant, except where certain types of interests and activities were usually associated with either sex.

An Investigation into the Problems related to the Preparation of Teachers for Teaching English to Secondary School Children in India

By P. V. Mehta

THE PROBLEM

The present study arose out of the generally observed and much deplored fact of falling standards of English in the country. A not-very-effective preparation of teachers for teaching the subject was felt to be responsible for the sorry state of affairs more than any other factor. Therefore, the main field of investigation was the programmes and procedures of training teachers for teaching English adopted in the various post-graduate teacher training institutions in India.

The basic assumptions on which the whole study stands are:

- (1) since English will continue to be taught as a school subject, it must be taught well,
- (2) the effectiveness or otherwise of teaching English lies largely in the hands of teachers, and
- (3) teacher training institutions must prepare efficient teachers for English.

THE PROCEDURE

In the present investigation the main steps followed after the selection of the problem had been: collection, analysis and interpretation of the data, followed by a critical evaluation of the existing conditions. The main source of information, besides the syllabuses for teacher training courses in India, had been the post-graduate training institutions themselves. Questionnaire technique was adopted for the collection of data.

For making an objective study of the current practices in different institutions, two questionnaires were devised—one, for the lecturers of English in Training Colleges, and the other, for the trainees specializing in the teaching of English.

The questionnaire for training college lecturers of English was divided into seven sections. The following is an outline of the main fields on which information and opinion were asked:

1. Candidates and their equipment.
2. Programme of work followed.
 - (a) Theory: lectures, seminars, tutorials and library reading.

- (b) Practice teaching.
 - (c) Sessional work.
 - (d) Practical classes and remedial work.
3. Follow-up studies and Inservice education.
 4. Opinions about the syllabus and programmes of work, and suggestions about the direction in which reorganisation of the plan for preparation of English teachers should move.

The questionnaire included queries (32 items) about objective facts, as well as individual opinion and evaluation of them on the following points:

1. Reasons for their choice of English.
2. The conditions and extent of command over English.
3. Relative importance attached to different language skills.
4. Worthwhile experience gained during the course.
5. The use of material aids.
6. The relative contribution of the various means of inspection.
7. An evaluation of the course in regard to training for teaching English.

Sixty lecturers' and four hundred trainees' responses formed the basis of the present study.

Data thus received from 60 Training Colleges were analysed, interpreted and discussed under the following heads:

1. Candidates for Training in English teaching.
2. Programmes of Works.
3. Syllabuses.
4. Facilities for Inservice Education of English Teachers.
5. Opinions about the Course.

The main facts that the data have revealed, the problems that emerge from those facts and figures, and the possible solutions of those problems are outlined below together with a few general recommendations for improvement in the field.

FACTS REVEALED

(a) *In relation to Trainees:*

- (1) The number of candidates offering English as a teaching subject is as large as 50% of the total trainees.

- (2) A very large majority of them are very poorly equipped for the job.

(b) *In relation to Programmes of work:*

- (1) The programme of work is narrow.

- (i) It usually includes theory and practice teaching only.

- (ii) Sessional work is not duly planned.

- (iii) Remedial and general work are virtually absent.

- (2) Theory is usually unrealistic.

- (i) Lectures are the common medium of instruction.

- (ii) Seminars and tutorials are neither a regular feature nor satisfactorily conducted.

- (iii) Use of library is inadequate.

- (3) Practice teaching is too formal.

- (i) It is too limited in range and scope.

- (ii) Guidance and supervision are not very satisfactory.

- (iii) Help from school teachers is not regular.

- (4) Sessional work is not always adopted to present needs.

- (i) Preparation of material aids is quite common.

- (ii) Construction and administration of tests in English is not usual.

- (iii) Criticism of text-books and syllabuses is very infrequent.

- (5) Remedial work and classes in practical skills are virtually absent.

- (i) Speech training and phonetics classes are rare.

- (ii) Dramatic and verse reading are even rarer.

- (iii) Literature and language instruction is not given at all.

(c) *In relation to Syllabuses:*

- (1) Syllabuses are generally out-of-date, and do not take into consideration the latest findings in the teaching of English as a Foreign language.

- (2) Most of them do not co-ordinate with the changed school syllabus.

(d) *In relation to Inservice Teacher Education:*

- (1) Need for further instruction is widely recognized.

- (2) Few facilities are present for follow-up studies of ex-trainees of English.
- (3) Facilities for Inservice Education of English teachers are very limited.
- (4) The responsibility of arranging for further education has not been taken up by proper organizations and associations.
- (e) *In relation to Opinions about the Course:*
 - (1) The current courses of education for English teachers are not considered satisfactory by a majority of the lecturers.
 - (2) More emphasis on practical work, vocal efficiency, practical guidance and on content of English language than at present is voted as desirable by a majority.
 - (3) Time devoted to training for teaching English is not considered sufficient by the majority.
 - (4) More lecturers think it desirable to have English offered as a single subject for training in teaching than to have the course extended to two years.

PROBLEMS EMERGING FROM THESE FACTS

- (a) *In relation to Candidates:*
 - (1) How to restrict training for teaching English to the fit though few candidates only?
 - (2) How to select suitable candidates for training?
- (b) *In relation to Programmes of Work:*
 - (1) In what way should the training programme for teachers of English be reorganised?
 - (2) How can the difficulties that stand in the way of re-organization be overcome?
- (c) *In relation to Syllabuses:*
 - (1) Why are the syllabuses not revised?
 - (2) What form should the revised syllabus for teaching English take?
- (d) *In relation to Inservice-Teacher Education:*
 - (1) Why is it particularly necessary to have inservice education for teachers of English?
 - (2) Who should organize it?
 - (3) What form should it take?
- (e) *In relation to Opinions about the Course:*
 - (1) How to increase the time allotted to the preparation of teachers for English?

- (2) Is it necessary to have specialist training for teaching English?
- (3) What should be the nature of a course of training suited to the needs of teachers for English as a foreign language?

THE POSSIBLE SOLUTIONS DISCUSSED

1. The desirability of having specialist teachers of English in schools rather than the practice of having any or all teachers to teach English.

2. Proficiency in English language especially in spoken English, to serve as the main criterion for selection of suitable candidates.

3. Reorganization of Programmes of Work so as to fulfil the following requirements:

- (i) There should be fewer lectures on theoretical topics.
- (ii) Seminars and tutorials must be regularly held with small groups and should be based on practical experience and problems of trainees.
- (iii) Library reading should be encouraged and well guided.
- (iv) More and varied experience in teaching English should be made available.
- (v) Demonstration lessons should cover various techniques of teaching English and should be arranged regularly.
- (vi) Systematic observation of many good English lessons should be required of the candidates.
- (vii) Sessional work should include construction and administration of new type tests in English and also a criticism of the school syllabus and text-books of English.
- (viii) Special instruction in phonetics, speech, verse-reading and dramatics should be available to all in small groups.
- (ix) Special remedial instruction and guidance must be given to the poorly-equipped ones, individually or in small groups.

4. Difficulties like lack of qualified staff, time equipment and facilities and dominance of examination at the training college and the unwholesome attitude of the schools may be overcome through measures like the following:

- (i) Part-time appointment of specialist in the field or a contract with other institutions and departments to share the instruction given by specialists, or better still, to have separate area Language Institutes

with full specialist staff through whose hands all English teachers must pass.

- (ii) Extension of the term of training course to two years, or having English as a single subject for training, or having long courses of 4 or 5 years with concurrent general and professional education for English teachers.
- (iii) Availability of government grants, cheaper material aids and facilities for borrowing library books as well as audio-visual aids.
- (iv) Bases of assessment should change from final to practical and sessional work.
- (v) The attitude of school teachers should be changed through educational and social measures.

5. Syllabuses must be revised so as to come in line with the present day needs :

- (i) They must include a study of the language structures and require practical work other than practice teaching e.g. phonetics, speech training and dramatics.
- (ii) Sessional work in various forms.
- (iii) Some of the theoretical topics like obsolete methods, aims and purposes of teaching English etc. should be deleted.

6. Facilities for education of inservice-teachers of English should be made available:

- (i) through the cooperation of Schools, Colleges, Universities, Departments and Directorates of Extension Services and special organizations for English teaching,
- (ii) in the form of lectures, conferences, seminars, week-end or vacation courses, and summer camps etc.

7. On the whole, the nature of the course must be different from the current pattern in so much so that:

- (i) It must be a practical course i.e., giving preference to principal work, skills, experience in teaching.
- (ii) It must lay more emphasis on vocal efficiency than written, i.e., phonetics and speech education in all forms must be given to all trainees.
- (iii) It must give no less attention to teaching the content of English language than to teaching the methods of teaching English.

Construction of an Achievement Test in Book-keeping for Class X of Delhi Higher Secondary Schools of Delhi

By P. C. Gupta

THE PROBLEM

The present study was an attempt to construct an achievement test in Book-keeping for class X of Higher Secondary Schools of Delhi. The investigation was based on the current syllabus for class X prescribed by the Delhi Department of Education. It, therefore, measures the achievement of the students but is not diagnostic in any sense. The class X of Higher Secondary Schools in Delhi State was also deliberately chosen for the following reasons :

1. Since class X is not the final class, the investigation as the present one does not dislocate school programme very much.

2. The Book-keeping syllabus is so designed that the same test can serve the purpose in High Schools too.

THE PREPARATION OF THE TEST

Keeping in view the objectives, the general opinion of the commerce teachers and analysis of Examination papers of various schools and of the Delhi Board of Higher Secondary Education, it was decided to begin with 200 items, which would roughly divide as follows :

Final Accounts	40 per cent
Journal	20 per cent
Subsidiary Books	10 per cent
Principal Books—General Information and General Understanding	30 per cent

After discussing with the commerce teachers only 110 items were kept in its preliminary form: These were as follows:

Final Accounts	43 items
Journal	22 „
Subsidiary Books	13 „
Principal Books—General Information and General Understanding	32 „

The items in each type of testing were as follows:—

True-False Type	25 items
Completion Type	7 „
Matching Type	8 „
Multiple Choice Type	36 „
Worksheet Type	34 „

Out of the total number of items, 80 were meant to measure the factual knowledge of students and 30, their reasoning ability.

ADMINISTRATION OF THE TRY-OUT

The preliminary form of the test (in English) was administered to 260 students of class X in 7 Higher Secondary schools of Delhi. The selection of these schools was made on the basis of stratified sampling. The following is the distribution of schools with number of students from each.

Schools :	A	B	C	D	E	F	G
No. of pupils	43	33	27	25	48	50	34 -260

On the whole, items requiring reasoning ability were answered better than the ones involving factual knowledge. From the 80 items of factual knowledge more than 45 per cent of the items were rejected whereas only 30 per cent were rejected from the items requiring reasoning ability.

THE FINAL FORM

Only 60 items were retained while 50 items were rejected. The distribution of items in the final form according to difficulty value and discriminating value is shown below in Tables I and II respectively :—

TABLE I

Distribution of items according to difficulty value

Difficulty value in percentage	Frequencies
75 -above	6
65—74	9
55—64	14
45—54	8
35—44	9
25 - 34	8
10—24	6
	60
	—

TABLE II

*Distribution of Items according to Discrimination
Indices*

Discrimination Indices.	Frequencies
.61—.70	4
.51—.60	8
.41—.50	3
.31—.40	7
.21—.30	27
.11—.20	11
	—
	60
	—

The items in the final form were distributed over the syllabus according to the following percentages :

Final Accounts	38 per cent
Journal	18 per cent
Subsidiary Books	12 per cent
Principal Books on General Information & General Under standing	32 per cent

The change in percentage was not significant as compared to the preliminary test form. The time fixed for the final form was 45 minutes. The reliability of the final form of the test was calculated to be .823. The test was validated against the school marks and the correlation co-efficient thus calculated was .144. However a provisional percentile norm has been worked out on the basis of 260 cases.

TABLE III

Percentile	Percentile norm	Scores
P ₉₉		43.16
P ₉₀		36.05
P ₈₀		33.16
P ₇₅		31.78
P ₇₀		30.46
P ₆₀		27.80
P ₅₀		25.00
P ₄₀		22.23
P ₃₀		19.91
P ₂₅		18.75
P ₂₀		17.59
P ₁₀		14.12

Construction of a Diagnostic Test in Decimal Fractions for Ninth Class of Delhi Schools

By P. S. Goraya

THE PROBLEM

The present investigation is intended to construct a diagnostic test in decimal fractions for IXth Class of Delhi Schools. The purpose of test construction is to equip the teachers concerned with an instrument which they may utilise to reveal the proficiency or lack of competence of the pupils in the computation and comprehension of the concepts of decimal fractions. The test is specifically meant for diagnosing the disabilities of the students, who have completed decimal fractions in the previous grades, and differ greatly in their past experiences. The test-results, therefore, might be considered as providing a basis for gauging the group and the individual needs for instruction. As the purpose, here, is to measure only the essentials of decimal fractions, the problem has been delimited as follows: (1) recurring decimal fractions find no place in the test; (2) questions on the four fundamental rules are restricted to one and two decimal places only; and (3) no questions on the determination of squares or square roots have been included. The idea underlying such delimitation is to place fairly easy material before the pupils so as to bring out a general pattern of errors to serve as a basis for preventive and remedial measures.

THE TEST

Thiele's five objectives of teaching decimal fractions were accepted as the basis for the selection of items to be included in the preliminary form of the test. They are—

- (1) understanding the ideas which decimal fractions express;
- (2) seeing meaning in the forms of notations employed to denote decimal fractions;
- (3) acquiring concepts of the operations with decimal fractions;
- (4) seeing relationships between decimal and common fractions; and

- (5) selecting learning experiences in harmony with the philosophy of arithmetic teaching which is concerned with meaning and understanding.

Functional aspect of decimals was determined on the basis of Hindustani Talimi Sangh's recommendations, which laid down (1) measurement to one place only, and (2) four rules to two decimal places only. It was considered essential to extend diagnostic approach to the area of understanding also, as implied in the objectives of teaching decimal fractions by Thiele.

The following sub-units were decided upon in consultation with four educators of local institutions:

Part A: (Four Fundamental rules: 60 items)

(a) addition	...	...	...	12 items
(b) subtraction	...	...	...	12 items
(c) multiplication	...	...	...	18 items
(d) division	...	...	...	18 items

All the items have multiple-choice form, each question followed by five possible choices for the answer.

Part B: (Understanding: 55 items on meaning, reading, comparison writing, conversion from common fraction to decimal fractions and vice versa, matching common fractions and decimal fractions, understanding—general and arrangement for addition). This part has a variety of forms as tabulated below:

Single Response	...	...	7 items
True-False	...	...	20 items
Alternate Response	...	...	2 items
Maching	...	...	9 items
Multiple Choice	...	...	17 items

TOTAL.....55

The test was administered to 100 boys and 46 girls of 6 High and Higher Secondary Schools of Delhi, and conclusions were drawn from the answers given by these 146 students.

THE FINDINGS

The following are the tabular representations of the results of Parts A and B of the test.

Part A (Computation)

Process	S. No.	Kind of error	Optimal percentage
ADDITION	1	Carrying	86
	2	Use of common fractions	67
	3	Arrangement	46
	4	Wrong placement of decimal point	10
	5	Omission of decimal point	6
	6	Zero difficulty	4
SUBTRACTION	1	Use of common fractions	60
	2	Arrangement	46
	3	Borrowing	37
	4	Erroneous prefixation of decimal point to integral minuend	21
	5	Interchange of a part of minuend and subtrahend	4
	6	Wrong placement of decimal point	3
	7	Omission of decimal point	3
MULTIPLICATION	1	Use of common fractions	54
	2	Wrong placement of decimal point	47
	3	Zero difficulty	34
	4	Omission of decimal point	14
	5	Disintegration of interal and fra parts while multiplying	4
DIVISION	1	Use of common fractions	91
	2	Location of decimal point	56
	3	Inversion of order of division	38
	4	Omission of decimal point	15
	5	Disintegration before division	11

Part B (Understanding)

Type of error		Optimal percentage
Meaning		65
Reading of instruments	foot-rule	16
	thermometer	84
Reading of numerical forms	hundredths	35
	tenths	19
Comparison		79
Writing of decimal fractions	hundredths	67
	tenths	50
Conversion	from common fraction	37
	to common fraction	22
Rationalisation and Estimation of answers		Complete lack of understanding

1. Common fractions dominate the whole field of decimal fractions.
2. Carrying in addition and borrowing in subtraction is considered difficult due to the presence of the decimal point.
3. Omission and wrong placement of the decimal point is prominent especially in multiplication and division.
4. There is general lack of understanding of decimal fractions. A number of pupils could not read even a foot-rule.
5. Pupils generally fail to understand the rationale behind the four fundamental rules and are at sea in estimation techniques.
6. Most of the errors reflect the poor formation of decimal concepts due to inadequate experiential background.
7. A large number of these disabilities are brought over to the ninth grade from the lower classes, thereby giving rise to vast individual differences.

PREVENTIVE AND REMEDIAL MEASURES

The general pattern of errors, as observed in the previous section, suggests a number of preventive and remedial measures.

- (1) It is desirable that the pupils be provided with experiences in direct manipulation by means of decimal units. The value of such exercises lies in the fact that they give the children a clear conception of decimal units and relationships among them.
- (2) The teaching of decimal fractions should be associated with class and social activities in cleanliness, gardening, spinning and weaving at the earlier stage. Their occurrence in a real problem-situation will give to the students an added interest and significance.
- (3) The approach to the four fundamental processes through common fractions is tedious and tiresome. The students should be helped to discover a particular process gradually.
- (4) Mathematical rationale for decimal multiplication and division may be developed through various estimation techniques and close attention to place-value. Such methods afford a check by revealing unreasonable results and provide confidence in the rule for placing the decimal point.
- (5) It is generally accepted that the notation of decimal fractions should be taught as an extension of the place-value concept in ordinary numbers. The best course is to reorganise the contents of our textbooks in order to eliminate the predominance of common fractions in the sphere of decimal fractions. This requires that the decimal-fraction meanings be obtained from an application of the principle of place-value.
- (6) Meaningful explanations for the addition and subtraction with decimal fractions are essential. The mechanical rule of 'Point-over-Point' generally gives way when the pupils are required to add or subtract the so-called 'rugged' decimal fractions. By the single device of changing decimal fractions to common denominators, as is done in the case of common fractions before adding or subtracting, the reason behind the rule is understood.
- (7) After the pupils have grasped certain principles relating to place-value, only one new principle must be understood i.e. to divide decimal-fraction

numbers successfully. The new principle is that divisions can be made more conveniently if divisors are transformed into whole numbers.

- (8) Pupils should be made to realise that the decimal point, though little, is too important to be ignored or misplaced. This may be accomplished, for instance, by requiring them to insert the decimal point at different places in a certain number and give their approximation to whole numbers.
- (9) It is strongly recommended that elementary knowledge about the meaning, notation, comparison and the four fundamental operations can be established through 'naya coins.'
- (10) Mechanical drill to stamp in a given process in a meaningless manner, is educationally unsound. Meaningful programme to enrich concepts is as essential in decimal fractions as elsewhere. Films on decimals are available and hence, these might be used in conjunction with class-room teaching.

An Investigation into the Vocational Interests of Class XI Students of Meerut Schools

By S. R. Bhat

IMPORTANCE OF THE PROBLEM

India is facing the problem of educated unemployed on one hand and that of vacant jobs for want of adequate skill on the other. Again, nearly 50 per cent of the High School students fail to pass the final examination and this 'student mortality' undermines the very structure of our society. All this results in producing misfits who cannot but harm the society.

What led to all these problems is the absence of educational and vocational guidance in the schools. The students make unwise choices of their educational and vocational programmes.

Vocational success apart from ability and proficiency depends upon a person's interest in the work. Interests like other personality traits differ from person to person and so their impact on the vocational field will make one person successful at an occupation and another, a failure. Assessment of the vocational interests is therefore of paramount importance for effective guidance work.

PURPOSE AND SCOPE OF THE PRESENT STUDY

The purpose of the investigation was :

1. To adapt and construct an interest questionnaire;
2. To assess the vocational interests of XIth class students of Meerut Schools;
3. To study the expressed vocational interest of the students and to find how far it differs from the assessed interest;
4. To find the relation, if any, of the assessed vocational interest with the subjects offered by the students, and with their parental occupations.
5. To study only boys of XIth class of the Intermediate Colleges of Meerut City.

Out of the four subject groups—Literary, Scientific, Constructive and Art—only the first three were studied. Results for the whole class also were derived. It was presumed that a person is fit for a family of occupations or for related groups of occupations.

PROCEDURE ADOPTED IN THE PRESENT STUDY

A. Construction of the questionnaire:

The interest questionnaire used by Hukam Chand Rattan Pal for studying the vocational interests of the High School boys of Kathua, was adapted by making necessary additions and alterations to suit the present conditions. The present questionnaire was divided into two parts—the first part contained some questions on personal data and the second contained 249 items on occupations, school subjects, activities and amusements.

This questionnaire was administered in seven Intermediate Colleges in Meerut City, to 229 students: 72, from Literary; 122, from Scientific; and 35, from Commerce groups.

B. Scoring of the questionnaire:

The items were divided into 11 occupational areas. Each item had 3 letters against it—L, I, D. The students were asked to put a circle round L, I, or D, if they liked, were indifferent to or disliked respectively that kind of work. Some items which could not be classified into these 11 occupational categories were clasified into two personality dimensions—Active and Passive.

The eleven occupational categories are :—

- | | |
|-----------------------|---------------|
| 1. Mechanical | 7. Literary |
| 2. Clerical | 8. Scientific |
| 3. Business | 9. Managerial |
| 4. Law and Government | 10. Military |
| 5. Social Service | 11. Manual. |
| 6. Artistic | |

PRESENTATION, ANALYSIS, AND INTERPRETATION OF THE DATA

A. Ages: The ages of the respondents were arranged in a frequency table and their median was calculated to be 16.5 years.

B. Occupations of Brothers or Sisters: Here the occupations concentrated mostly on Manual, Business, Law and Government and the lowest for Managerial, Artistic and Mechanical Occupations.

The three subject groups were studied for this purpose separately. The results were as follows:

Group	Highest concentration (in order of rank)
Literary.	Manual, Law and Government, Business.
Scientific	Business, Law and Government, Manual.
Commerce	Business, Law and Government, Manual.

C. Subjects in which the students were most interested were observed for the three groups.

<i>Group</i>	<i>First preference</i>
Literary	Civics, History, Geography, Art.
Scientific	Science.
Commerce	Commerce and Geography.

D. *Planning to read in Degree Colleges*: It was observed that 73.6 per cent from Literary Group, 72 per cent from Scientific and 85.6 per cent from Commerce Group planned to read in Degree colleges. 23.6 per cent, 24.6 per cent and 11.4 per cent from these three groups did not plan to join while 3.8 per cent, 3.3 per cent and 3.0 per cent respectively were undecided.

E. *Expressed choices of Occupations*: The Literary group showed the highest choice for Law and Government and Military; the Scientific Group, for Scientific Mechanical and Military; while the Commerce, for Business, Clerical, Law and Government. Many students had expressed no choice.

F. *Occupations of Parents*: Taking the class as a whole the occupations of the parents showed the highest frequency in Manual, Business and Law and Government occupations.

G. *Subjects Taken in High School and Intermediate Classes*: It was observed that 40 per cent students in Literary group, 4 per cent in Scientific and 50 per cent in Commerce Group had not offered the same subjects in the Intermediate Class with which they had passed the High School Examination. This shows an unwise choice of subjects in High School Classes.

H. *Investigations into Vocational Interests*: The questionnaire was second in the manner as already mentioned for the 11 occupational categories, separately for the three groups. Median score (P_{50}) for each occupational area was found which represented the vocational interest (in ranks) of the students for each area. As the number of items in each category was different, it was not possible to make a comparison between the categories or the groups. To remove this difficulty the median scores were converted into the per cents of the maximum possible score in each category (when all items in a category are marked "L"). The percentages so got were used for a comparative study of

the vocational interests of the three groups. The following results were arrived at :—

*Vocational Interests of XIth Class Students
of Meerut Schools.*

<i>Group</i>	<i>Area of Greatest Interest</i>	<i>Area of Least Interests</i>
1. Literary	1. Military 2. Law & Government 3. Social Service/Literary	1. Manual 2. Business 3. Artistic
2. Scientific	1. Scientific 2. Military 3. Mechanical	1. Manual 2. Business 3. Clerical
3. Commerce	1. Clerical 2. Managerial/Military 3. Social Service	1. Manual 2. Mechanical 3. Business
4. Whole Group of XIth Class	1. Military 2. Social Service 3. Literary 4. Scientific	1. Manual 2. Business 3. Artistic

From the study of the two results given above it is clear that there was both agreement and disagreement between the expressed and the measured interests of the students which is shown below :

<i>S. No.</i>	<i>Group</i>	<i>Agreement</i>	<i>Disagreement</i>
1.	Literary	1. Military 2. Law and Government 3. Manual 4. Artistic	Literary
2.	Scientific	1. Scientific 2. Military 3. Mechanical	No apparent disagreement
3.	Commerce	1. Military 2. Clerical 3. Law & Government	1. Business 2. Social Service 3. Managerial
4.	Whole Group	1. Military 2. Manual	1. Social Servic 2. Literary

Except in the case of the Scientific Group which in this study did not show any apparent disagreement between the expressed and measured interest there is marked discrepancy between the two interests in the case of Literary and Commerce Groups. This discrepancy is there when the group as a whole is taken into consideration. All the groups show a great interest for Military occupations and a less interest in Manual and Artistic occupations.

Vocational Interests and Subjects Taken: From this study it was clear that :—

1. In the case of Literary Group there was agreement to some extent between the measured interest and the subjects chosen.
2. In Scientific Group there was full agreement between the two.
3. In the case of Commerce Group again there was little agreement between the two. Many students did not seem to be interested in the subjects taken by them.

All this is due to the absence of proper educational guidance. The teachers seem to have taken care of allocating the student to the Scientific Group only leaving the other groups unattended and hence this disagreement.

Vocational Interests and Parents' Occupations: This study showed that the parents' occupations did not at all have any influence on the measured interests of any of these three groups nor did it have any effect on the group as a whole.

It thus necessitates that stress in schools be laid in providing those subjects in which the students have shown marked interest under this study. The present questionnaire will be helpful to the teachers and counsellors to measure the interest areas of their students and to see whether their measured and claimed interests agree. If there is a discrepancy between the two the student need help which the teacher or the counsellor should give by conducting interviews with him. In order to save him from future disappointment he should be helped to make a wise choice in accordance with his interests measured on this questionnaire. All this can be materialised only when there is provision in school for educational and vocational guidance.

Construction of a Test of Understanding in Geometry covering the Syllabus of Class IX of Higher Secondary Schools of Delhi

By S. S. Vaidwan

The present study was an attempt to construct a test of understanding in Geometry covering the course of IXth class of Higher Secondary Schools of Delhi.

PROCEDURE ADOPTED IN THE STUDY

In planning the test due consideration was given to the nature of the objectives to be measured. These were ascertained through a discussion with school teachers and the principles suggested by the National Society for the Study of Education in the 45th Year Book.

The syllabus of IXth class was divided into 13 categories each receiving due weightage.

The test was constructed in two parts; each including multiple-choice, matching, alternative response, selection, comparison and completion items. The test had 47 and 53 items in the respective forms.

The try-out form was administered to 250 boys and 100 girls in 12 higher secondary schools selected on random sample basis. After the administration of the test, the scripts were scored according to the key specially prepared for the test. Items for the final form were selected on the basis of difficulty and discrimination values. On the basis of these criteria, 27 items were rejected in all. The final form had, therefore, 73 items, Part I having 35 items and Part II, 38 items. The items were arranged in accordance with difficulty index within the respective sub-groups. The final form of the test was of the duration of 40 and 45 minutes for Part I and Part II respectively.

ANALYSIS AND INTERPRETATION OF DATA

The data were statistically analysed then for the central tendency, dispersion and the general symmetry. The mean, median, and standard deviation were calculated to be 56.53, 55.99 and 13.65 respectively. The distribution did not deviate significantly from normalcy. Reliability of the whole test was found to be .90.

Validity of the test was statistically calculated against school marks and was found to be .74.

FINDINGS

The test revealed that in the sample there was a noticeable difference in the levels of understanding of boys and girls. Almost in all the items, the girls were found to be ahead of boys. The reason for this disparity might be attributed to the following :

- (a) A number of diversified courses are provided at the Higher Secondary stage, so that one can presume that only those girls take up mathematics at this stage who have got real aptitude for it.
- (b) In almost all the girls' schools of Delhi it is found that the mathematics class is very small and thus individual attention on the part of the teacher is possible.
- (c) All the girls' schools in the sample generally provide science group only to those students who are found good in mathematics. On the other hand, the sample of boys' schools contains students of both science and art groups (Higher and Lower Mathematics). Thus the arts students taking up mathematics may be held responsible for lower percentages.

2. A number of situations were provided in the test to ascertain their clear understanding of the basic terms and ability to recognise their occurrences in real life situations. The results on the whole show their failure in this respect.

3. The geometrical constructions were found to be treated in a mechanical way, without knowing the reasons and principle on which they are based. The analytical approach in solving geometrical problems seemed to be missing.

4. There was evidence of absence of coherent thinking in proving theorems by the students. Their performance was more or less based on rote memory rather than on understanding and clear thinking.

5. The students showed lack of understanding in the fundamental notions like hypothesis, proposition, corollary and converse etc. But on an average, they were well familiar with the terms like point, line, surface, postulate and axioms etc.

6. The testers were found to be conversant with the various kinds of angles, but the supplementary and adjacent angles need constant mention in order to make them feel at home with these terms.

7. In parallel lines, all their proportions and angular relations seemed to be clear to the group whereas the grasp of the term 'Transversal' was found to be very poor.

8. The idea of the word 'Polygon', its understanding and manipulative technique of its angles and ability to extend these to other similar situations were such as requiring more thorough handling by the teachers. The group showed its familiarity in recognising the various kinds of polygons.

9. The concept of a triangle was quite clear to the group, but it had scant knowledge of isosceles triangles and their properties. They lacked manipulative techniques in most cases.

10. In quadrilaterals, the concept of perimeter, the difference between a rhombus and a rectangle, and the bisection of area were found to be wanting.

11. The Pythagoras theorem was quite known to the pupils whereas the Apolloneous theorem and their direct applications, to various situations was not so well known to the group. The notion of 'projection' was altogether missing in the group.

12. The group showed some knowledge of the terms like 'Locus' but failed to apply them to other similar situations.

13. The results of even important theorems, were found vague in the minds of the pupils in the group. The important concept of a centroid was not clearly grasped by the pupils in the sample.

SUGGESTIONS

The application of the principles and concepts of Geometry should not be confined to the text-books exercises alone, but supplemented by other means also.

Use of audio-visual aids should be made and students be enabled to appreciate the application of geometrical principles and concepts in life situations.

In addition, the pupils may be encouraged to take some independent projects to find out the use of geometrical facts and principles in life situations.

Teaching of Geometry should be correlated with other subjects and other school activities as envisaged by the Nai Talim.

An Investigation into the Nature, Work and Requirements of the Job of a Cotton Textile Supervisor (in the district of Murshidabad, West Bengal and Delhi State)

By S. K. Bagchi

PURPOSE OF THE STUDY

The purpose of the study was to collect information regarding the job of a cotton textile supervisor. The report was undertaken to help (a) India's growing textile industry by making available the right and accurate information about the job, (b) the management to recruit and train the personnel for qualified supervisor on whom the real success and profit of the mills rest and, (c) to let know the school teachers the scope of employment as such in order to deal with the question of unemployment and social maladjustment.

PRESENT PROCEDURE

The method of obtaining occupational information chiefly used in this study was the questionnaire survey method because it was not possible to observe all the jobs on account of wide coverage which makes personal contact with the workers impossible. The questionnaire was used by the investigator in obtaining information regarding the duties and training of those who would like to take up the job of a textile supervisor.

Personal interviews with the supervisors in the mills, helped the investigator to look into the real nature of the work they do, the working places and the conditions of work and handicaps and hazards. Many aspects of these they told the investigator verbally to avoid future consequences relating to their jobs.

Two schedules were used. One was meant for the workers and the other was for the managers and instructors with a view to getting very clear comprehensive and accurate information about the occupation. Though the schedules were different, they contained almost the same items to facilitate the checking of information. Thus, the schedule for the workers contained general information relating to the worker.

SCHEDULE FOR THE WORKERS

Section : A Working conditions.

B Nature of work done.

C Aspects of job that need independent decision.

D & E Physical demands and level of difficulty involving responsibility and team work, if any.

- F Qualifications needed.
- G & H Personal view on the job.
- I Handicaps in the work, if any.
- J The duties in general the worker performs in brief.

SCHEDULE FOR THE MANAGERS

Part I of the schedule was framed to ascertain the views of the managers, instructors etc, or the requirements of the job on a four point scale to check up more accurately the information which is obtained from the workers. Part II of the schedule was framed to collect information on the general nature of the job.

COLLECTION OF THE DATA

Two big mills, one at Delhi and another at Murshidabad have been chosen for obtaining the necessary data about the investigation. The reason for selecting two mills from the two extreme parts of India was to get a true picture of the occupational requirements, needs, nature of work, pay and prospects. The schedules were filled up by 21 supervisors and 8 employers.

JOB SUMMARY

The findings of the investigation may be summed up as follows :

General:

A textile supervisor looks after the four major sections of the mill, viz., weaving, carding, spinning and dyeing. He is primarily responsible for production in the textile mills and looks into the work of weavers, dyers and spinners.

Place of work:

The place of work is generally dirty, damp, hot (or cold in case of carding) dusty, noisy and indoor.

Kind of work performed:

- (a) He ensures production and efficiency of the section, he supervises.
- (b) He maintains a level of humidity in the working place by humidity regulators.
- (c) He maintains log book of the shifts for verification of the stock and material.
- (d) He studies time and also motion of the machines for effective control of his department.

- (e) He adopts statistical quantity control methods to avoid wastage of materials.
- (f) He maintains machinery.
- (g) He establishes job-relation with other workers such as weavers, dyers and spinners.
- (h) He controls labour under his supervision.

Machine and materials used:

The supervisor generally handles and supervises looms, carding engines, beam warping and winding with their settings and working arrangements, sizing and mixing, drawing and reaching, and lubrication of machine.

General standard of Health and Physical fitness:

1 Height	}	
2 Chest	}	above the average.
3 Physical Strength	}	
4 Eyesight		of high order
5 Standing		average 6 hours out of 8 hours.
6 Stooping	}	
7 Walking	}	average 2 hours.

Unless he enjoys good health and possesses sufficient strength, he cannot perform his duty satisfactorily.

Responsibility:

Responsibility for the work of others, safety devices to check the possible damages and ability to adopt administrative measures are essential requirements for the satisfactory performance of the job.

Qualifications needed:

General education : Matriculation minimum for the new entrants.

Technical education : Diploma in Textiles from a Textile Institute under going 3 years' course or apprenticeship in a mill for long period.

3. Special skills requiring mechanism of looms, carding engines, ring frames and textile techniques known as weaving and spinning techniques.

Qualities needed for successful performance of the job :

- (a) Personal quality such as sympathy, tolerance, sociability, leadership.
- (b) Knack of getting cooperation from others.
- (c) Thorough practical knowledge of the working of his section.

- (d) Presence of mind in critical situation such as tackling some dissatisfied workers, or in some unwarranted accidents that may crop up at the time of operation.
- (e) Disciplinary habits like punctuality, sincerity and loyalty to job etc.
- (f) Responsibility (for the maintenance of machines and materials).

Causes of being unsuccessful:

- (a) General carelessness.
- (b) Bad dealings with others.
- (c) Ill temper.
- (d) Want of mechanical knowledge.
- (e) Non-cooperation.
- (f) Ill health.

Hazards involved in the Job:

- (a) Labour trouble on averages etc.
- (b) Accidents due to unguarded wheels.
- (c) Insecurity of service conditions.

Pay, Promotion and Possibility of Transfer to other jobs:

Pay: There is no fixed scale of pay as yet, but it ranges from Rs. 125/- to Rs. 450/- p.m. excluding allowances.

Promotion: Head shift assistants usually after 5 years of approved service.

Related Jobs: Jobs in jute, silken and woollen mills with a little training.

Hiring requirements for a full-fledged Mill: Minimum of fourteen in each section such as weaving and spinning sections.

Job Combination in the Mill: Transfer from one section to the other is made.

Construction of an Achievement Test in Problem-Arithmetic for Children 9—11 Years of Age (Usable in Delhi State-Schools)

By S. Chopra

IMPORTANCE OF THE PROBLEM

At the elementary stage of child's education Arithmetic forms the most important part of education. In the first two years of his arithmetic learning he is made (1) to understand the nature of the number system as a system of ones, tens and hundreds, etc., (2) to develop a real understanding of place value of each digit, and (3) to have an understanding of the four fundamental processes (i.e. addition, subtraction, multiplication and division). These processes have no meaning to the child except the drill in computing numbers mechanically. It is quite simple to teach a child that four and two are six. But such a fact is actually like the part of an iceberg that may be seen above the surface. Most of the learning that supports it, is deep in the child's sea of experience. The goal is not merely the memorization, through drill, of the addition and subtraction facts but the use of these facts in practical situations of life problems. The above aim is tried to be achieved in the later years of child's education. The mechanical operations with number are given shape and meaning by their utilization in solving problems in arithmetic in the third, fourth and fifth grades. The child learns almost all problem solving techniques in these three grades. In the upper grades the arithmetic programme carries to a higher level all the aspects of problem solving developed in the previous grades. Hence the most important period of child's arithmetical education lies in the third, fourth and fifth grades which serves as a basis of all further higher arithmetical learning. As most of the further learning of the child is based on what he has learnt in earlier grades, it is very necessary for the teacher to make sure of the arithmetical knowledge of children who are coming to the Sixth grade through a graded series of problems which they have been practising upon to solve in the earlier three grades.

PURPOSE OF THE STUDY

The present study was an attempt to construct an achievement test in Problem Arithmetic for children of 9 to 11 years of age of Delhi Schools. Its immediate purposes were, —

- (1) to construct a reliable tool for arithmetic teachers, which could be utilized for assessing their pupils' progress in problem solving as they proceed from grade to grade;

- (2) to assess the progress of students in the understanding of the concepts, techniques and principles as involved in the solution of problems from age to age; and
- (3) to detect how much backward a child was in solving arithmetical problems.

PLANNING THE TEST

The purpose of the present study was to prepare an achievement test in problem solving for children of 9 to 11 years of age. Hence the investigator made it a point to see that the test covered the whole of arithmetic taught to pupils up to the 5th grade. For this reason a thorough study of the syllabus of the elementary school arithmetic, prescribed by the Directorate of Education, Delhi, was made, so as to acquaint the investigator with the topics included in the syllabus before proceeding to the actual work. The investigator also contacted some of the teachers of Arithmetic to make sure the degree of importance given to problem solving at the elementary stage and found that in all the schools problem solving formed a very important part of all arithmetical teaching in the primary grades. The time devoted to this aspect of arithmetic was considerably more than the time devoted to any other aspect. The investigator also inquired from the teachers the type of problems they usually emphasized to be practised upon by the pupils. The teachers were asked actually to supply at least five problems each for all the three age groups, which they considered to be the most important. In this way about 60 problems were collected from the teachers of different schools. The prescribed text books in Arithmetic for the third, fourth and fifth grades were thoroughly perused by the investigator because the children of 9 to 11 years of age were generally scattered over these three grades. The collected problems were studied in comparison with the problems in the text books and care was taken to avoid the language of the text as far as possible, because the aim was to see whether the children had real understanding of the problems or not. After a careful examination of each problem regarding the difficulty involved in it, the investigator selected 50 problems to be included in the test. The investigator thought it necessary to limit the number of problems in the test because the test was meant for young children who are incapable of sitting at a test for more than an hour and a half with some concentration. Considerable care was taken to include a proportionate number of problems which could be solved by the third, fourth and fifth grade pupils. Therefore problems involving simple

addition, subtraction, multiplication and division relating to money, weights and measurements, profit and loss problems, (not involving percentage), simple problems of area of a square, easy problems on unitary method and simple problems of time and work had been included in the test. All these types of problems had been given place in the test according to the importance they were given in the teaching of arithmetic. Care was also taken to avoid the inclusion of lot of mechanical work in the problems, because the purpose of the test was not to judge the computational skill of the child but to see his ability to perceive relationships and to apply operations involved in the solution of problems. An effort was made by the investigator to arrange the items or the problems of the test in order of difficulty.

FINDINGS

The following table shows the distribution of students according to age and grade levels.

AGE	GRADES			TOTAL
	III	IV	V	
9	72	21	7	100
10	18	57	25	100
11	10	22	68	100
Total	100	100	100	300

According to the difficulty value and discrimination basis 15 items were rejected and 35 problems retained in the final form of the test. The time fixed for the final form of the test is one hour. Reliability coefficients of the test had been calculated separately for three ages 9, 10, and 11 which were, .72, .82 and .90 respectively. The curricular validity of the test was ensured.

1. The scores of the three age groups 9+, 10+, and 11+ ranged from 1 to 25, 1 to 31 and 1 to 35 respectively.

2. Mean scores for the three age groups on the final form of the test were found to be 10.87, 13.78 and 17.10 respectively.

3. Mean scores of the three grades III, IV and V were 9.13, 14.74 and 18.16 respectively.

4. The difference between the mean value of 9+ and 10+ age groups and 10+ and 11+ year age groups is very

significant. This shows that the test has a considerably high power of discrimination between the various ages for which the test is meant.

5. There is no significant difference between the mean scores of 11 year age group and Vth grade and of 10 year age group and IVth grade, but the difference between the mean scores of 9 year age group and IIIrd grades is significant. The age achievement is better than grade achievement. This shows that there is a marked increase in the ability to solve problems even at the lower age level.



LIST OF C. I. E. PUBLICATIONS

Publication No.	Name of the Publication	Price Rs.
1	Summaries of M. Ed. Reports—1950-51, Vol. I.	1'00
2	Summaries of M. Ed. Reports—1950-51, Vol. II.	1'30
3	An Investigation into the Achievement in Local History of Higher Secondary School Students in Delhi, by Soimnath Saraf.	1'30
4	Summaries of M. Ed. Reports—1951-52	1'30
5	A Study of Child Delinquency, by Uday Shanker	1'30
6	Selection of Children for Secondary Technical Education at Eleven Plus by Veda Prakash.	1'30
7	Prognostic Value of the Higher Secondary Examination of Delhi by Sunil Datta	1'30
8	Report of the Second All-India Seminar on Educational and Vocational Guidance.	1'50
9	Practical Ability by Veda Prakash	1'50
10	A Study in the Vocabulary of Hindi Primers by, A. N. Basu, M. K. Malhotra and Bir Bahadur.	1'30
11	An Experiment in Preparing Basic Vocabulary for Adults, by A. N. Basu and Laxmi Narain Sharma.	1'50
12	Thoughts for the day, by A. N. Basu.	0'50
13	Leadership Among Children, by Prem Pasricha.	1'50
14	School Record, by A. N. Basu.	0'37
15	The Multipurpose School, by A. N. Basu.	0'50
16	C. I. E. Individual Scale of Intelligence.	3'00
17	The Attitudes of Junior Basic School Children Towards School Activities by E. A. Pires.	0'37
18	Building up a Social Studies Curriculum for the C. I. E. Basic School, by E. A. Pires and Kamla Katyal.	1'50
19	Selection for Secondary Education in England, by P. K. Roy.	1'50
20	Education of the Handicapped in Australia, by P. D. Sharma.	1'50
21	The Mentally Retarded Child, by Uday Shankar.	1'50
22	Evaluative Criteria for Teachers' College, by E. A. Pires.	0'50
23	Summaries of M. Ed. Reports—1952-53.	1'50
24	Summaries of M. Ed. Reports—1953-54.	1'50
25	First Step in the Socialization of Children in the C. I. E. Nursery School, by E. A. Pires and Usha Kanwar.	1'75
26	Summaries of M. Ed. Reports—1954-55.	1'50
27	Summaries of M. Ed. Reports—1955-56.	1'50
28	The Community School in the Philippines, by Shanti Taval	1'00
29	Measurement of Understanding in physics by D. S. Nigam	0'50
30	Validity of a Battery of Selection Tests for Admission to the B. Ed. Course at the C. I. E. by R. N. Mehrotra.	0'30
31	Qualitative Analysis of Children's Explanations of Physical Causality, by Prem Pasricha and Prem Singari Suri	0'75
32	Foundations of a National System of Education for India.	0'50
33	A Study of the Marks Obtained by Examinees in Different Subjects at the M. A. Examination of the University of Delhi in the Years 1950 to 1957 by Suchlata Shukla.	0'50
34	A Study of the Written Vocabulary of Sixth Class Children in Delhi Schools by Prem Pasricha and Sudir K. Das.	1'60
35	Assembly Prayers by, E. A. Pires	1'30
36	A Comparison of the Attainment of Children of the C. I. E. Basic School with Those of Other School Children in Delhi.	2'10
37	Planning and Organizing School Journey by S. Bhola	1'50
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